BLAUPUNKT

MOBILE VIDEO SYSTEMS

VIDEO PLAYER MVP 01

PAL 7 607 900 031 (24V)

PAL / SECAM 7 607 900 032 (24V)

PAL 7 607 900 036 (12V)

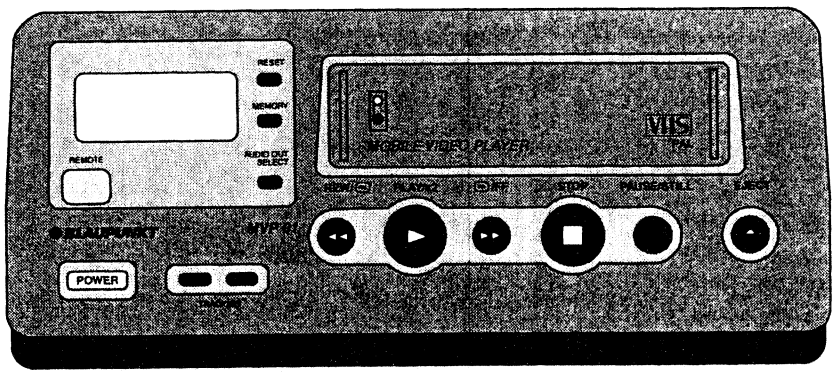
IR REMOTE CONTROL

7 607 910 050

KH-C/VKD 3 D93 420 014 08/93

Kundendienstschrift • Service Manual

4.1



PAL-Version (...031, ...036)

Inhaltsverzeichnis

	Seite
Technische Daten	2
Technische Hinweise	2
Bedienungshinweise MVP 01	3
Erforderliche Meßgeräte, Schablonen und Spezialwerkzeuge	4
Service Hinweise	5-13
Mechanischer Abgleich	14-40
Elektrischer Abgleich	41-44
Halbleiter- Anschlußpunkte	45-47
Verdrahtungsplan	48-50
Blockschaltbilder	51-63
Schaltbilder, Platinen, Oszillogramme und Spannungstabelle	64-94
Bedienungshinweise IR- Fernbedienung	95
Schaltbild und Platine SECAM-Teil	97-98
Explosionszeichnungen	99-102
Ersatzteilliste	103-107

Table of Contents

	Page
Technical Data	2
Technical Informations	2
Operating Instructions MVP 01	3
Required Servicing Fixtures, Jigs and Special Tools	4
Service Notes	5-13
Mechanical Adjustment Procedure	14-40
Electrical Adjustment Procedure	41-44
Semi Conductor Connection Points	45-47
Interconnection Schematic Diagram	48-50
Block Diagrams	51-63
Schematic Diagrams, Component Boards, Oscillograms and Voltage Chart	64-94
Operating Instructions IR Remote Control	96
Schematic Diagram and Board SECAM Section	97-98
Exploded Views	99-102
Spare Parts List	103-107

Technische Daten

ALLGEMEIN	
Betriebsspannung:	12 V (... 036) 24 V (... 031, ... 032)
Leistungsaufnahme:	15 W
Betriebstemperatur:	0°C – 40°C
Luftfeuchtigkeit:	10 % – 80 %
Abmessungen BxHxT:	215 x 95 x 269,5
Masse:	ca. 3 kg
VIDEO	
Fernsehsystem	
CCIR:	625 Zeilen 50 Halbbilder PAL-Farbsignal (... 031, ... 036) PAL/SECAM-Farbsignal (...032)
Bandformat:	VHS
Wiedergabesystem:	4 rotierende Köpfe VHS Schrägspurverfahren
Bandgeschwindigkeit:	23,39 mm/s (SP)
Vor/Rückspulzeit:	ca. 6 Min. (E180)
Ausgangspegel:	1,0Vss / 75Ω
Signal-Rauschabstand:	> 37 dB
Horizontalauflösung	
Farbe:	> 230 Linien
AUDIO	
Wiedergabesystem:	2 rotierende Köpfe für HiFi 1 Kopf für Längsspur
Ausgangspegel:	-8 dBV (400 mVss) / 1 kHz (1kΩ)
Übertragungsbereich	
HiFi:	20 Hz – 20 kHz
Normal:	100 Hz – 8 kHz
Signal-Rauschabstand	
HiFi:	> 68 dB
Normal:	> 40 dB

Technische Hinweise

1. Feuchtigkeitsanzeige

Hat sich im MVP 01 Feuchtigkeit gebildet, z.B. durch Kondensation, so erscheint im Display ein "d".
Bei eingeschaltetem Gerät (POWER ON) wird die Feuchtigkeit an der Kopftrommeleinheit durch eine spezielle Heizung beseitigt.
Sobald die Anzeige "d" erloschen ist (nach ca. 1 - 1,5 Std.), kann der MVP 01 wie gewohnt betrieben werden.

2. Betriebstemperatur

Wird durch die Umgebungstemperatur die Betriebstemperatur des MVP 01 zu hoch, so blinken die Bedienelement-Anzeigen.
Zum Schutz der Cassette werden alle Funktionen blockiert und die Cassette ausgeschoben.
In diesem Fall das Gerät ausschalten, bis sich die Temperatur im Fahrzeuginneren abgekühlt hat.

Technical Data

GENERAL	
Operating voltage:	12 V (... 036) 24 V (... 031, ... 032)
Power consumption:	15 W
Operating temperature:	0°C – 40°C
Humidity:	10 % – 80 %
Dimensions (WxHxD):	215 x 95 x 269.5
Weight:	approx. 3 kg
VIDEO	
TV system	
CCIR:	625 lines 50 fields PAL colour signal (...031, ... 036) PAL/SECAM colour signal (...032)
Band format:	VHS
Playback system:	4 rotating heads VHS helical scan
Tape speed:	23.39 mm/s (SP)
Winding time:	approx. 6 min (E180)
Output level:	1.0Vpp / 75Ω
S/N ratio:	> 37 dB
Horizontal	
colour resolution:	> 230 lines
AUDIO	
Playback system:	2 rotating HiFi audio heads 1 head for longitudinal track
Output level:	-8 dBV (400 mVpp) / 1 kHz (1kΩ)
Frequency response	
HiFi:	20 Hz – 20 kHz
Normal:	100 Hz – 8 kHz
S/N ratio	
HiFi:	> 68 dB
Normal:	> 40 dB

Technical Information

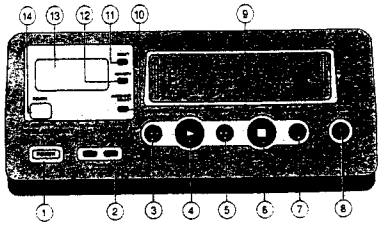
1. Humidity indicator

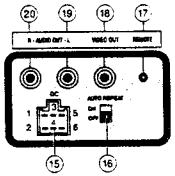
If humidity builds up in the MVP 01 (e.g. condensation), the display will show "d".
When the unit is turned on (POWER ON), a special heating takes charge to remove the humidity at the head drum.
As soon as the "d" indication goes out in the display (after about 1 - 1,5 hours), the MVP 01 can be put into operation again.

2. Operation temperature

If the operating temperature of the MVP 01 becomes too high due to the environmental temperature, the display indicators will start flashing.
All functions will be blocked to protect the tape and the cassette will be ejected.
In this case, turn the unit off until the temperature in the car cabin has cooled down.

Bedienungshinweise





PAL-Version (...031, ...036)

Hinweis: Das Gerät darf nur mit dem **beigelegten Stromkabel** an die auf dem Typschild stehende Betriebsspannung angeschlossen werden.

① POWER – zum Ein- und Ausschalten.
- Hinweis: Das Gerät schaltet automatisch ein, wenn eine Cassette eingeschoben wird und geht danach in die Funktion Wiedergabe.

② TRACKING +,– – zum Ausblenden von Bildzittern bei Standbild.
Beide Tasten drücken: Autotracking.

③ REW/ ⏪ – nach STOP: schneller Rücklauf
– bei Wiedergabe: schneller Bildsuchlauf (Ton wird stummgeschaltet).
- zurück auf normale Wiedergabe: Taste PLAY erneut drücken.

④ PLAY/x2 – Wiedergabe
– Taste 2x drücken, Wiedergabe mit ca. doppelter Geschwindigkeit
- zurück auf normale Wiedergabe: Taste PLAY erneut drücken.

⑤ ⏩/FF – nach STOP: schneller Vorlauf
- am Bandende automatisches Zurückspulen
– bei Wiedergabe: schneller Bildsuchlauf (Ton wird stummgeschaltet).
- zurück auf normale Wiedergabe: Taste PLAY erneut drücken.

⑥ STOP – Beenden des Bandlaufs.

⑦ PAUSE/STILL – Standbild (Gerät schaltet nach 5 Min. Standbild auf Stop)
- zurück auf normale Wiedergabe: Taste PLAY nochmals drücken.

⑧ EJECT – Cassettenauswurf.

⑨ – Cassettenschacht.

⑩ AUDIO OUT SELECT – Wahl der Tonspur: HiFi L+R, HiFi L, HiFi R, keine Anzeige - normale Tonspur.

⑪ RESET – zum Zurücksetzen des Bandzählwerkes auf „0 : 00.00".

⑫ MEMORY – zum Speichern einer Bandstelle in Verbindung mit Taste RESET. Das Band stoppt an der gespeicherten Bandstelle bei schnellem Vor- bzw. Rücklauf.

⑬ DISPLAY – zeigt die Funktionen an. Anzeige „d" Feuchtigkeitsanzeige.

⑭ REMOTE – Infrarotempfänger für Fernbedienung.

⑮ DC – Anschlußstecker für Betriebsspannung.
1 = +, 2 = + Stand by (Schaltleitung),
3 = – (Masse)
- Hinweis: Die Anschlüsse 1 und 2 müssen **beide** angeschlossen werden.

⑯ AUTO REPEAT – zum automatischen Wiederholen.

⑰ REMOTE – Anschluß für Kabelfernbedienung.

⑱ - ⑳ – Video und Audio Ausgangsbuchsen.

Operating Instructions

Note: The unit may only be connected to the operating voltage mentioned on the type label using the **enclosed power cable**.

① POWER – to switch on/off
- Note: The unit switches on automatically and starts playback, if a cassette is inserted.

② TRACKING +,– – to eliminate interference patterns. Press both button: Autotracking.

③ REW/ ⏪ – after STOP: fast rewind
– during playback: fast picture seek tuning (the sound will be muted).
- back to normal playback: press button PLAY once again.

④ PLAY/x2 – playback
– press button twice, playback with approx. doubled speed
- back to normal playback: press button PLAY once again.

⑤ ⏩/FF – after STOP: fast forward
- automatic rewinding at the end of the tape
– during playback: fast picture seek tuning (the sound will be muted).
- back to normal playback: press button PLAY once again.

⑥ STOP – switch off the tape winding

⑦ PAUSE/STILL – still (after having activated the still for 5 min. the unit switches over to stop)
- back to normal playback: press button PLAY once again.

⑧ EJECT – cassette eject

⑨ – cassette compartment

⑩ AUDIO OUT SELECT – choice of audio track: HiFi L+R HiFi L, HiFi R no indication – normal audio track

⑪ RESET – to reset the tape counter to "0 : 00.00"

⑫ MEMORY – to store a tape position combined with button RESET. The unit stops winding the tape at the stored tape position when fast forwarding or rewinding.

⑬ DISPLAY – indicates the functions. Indication "d" humidity indication

⑭ REMOTE – infrared receiver for remote control

⑮ DC – jack for operating voltage
1 = +, 2 = + stand by (switching line),
3 = – (ground)
- Note: The connections 1 and 2 shall **both** be connected.

⑯ AUTO REPEAT – to repeat automatically

⑰ REMOTE – connection for cable remote control

⑱ - ⑳ – video and audio output jacks

Erforderliche Meßgeräte, Schablonen und Spezialwerkzeuge
Required Servicing Fixtures, Jigs and Special Tools

8 627 000 540 VHS-Testkassette VHS alignment tape	8 619 498 006 Bandzugwaage Back tension meter	8 619 497 807 Höhenmeßuhr Reel table height fixture
8 619 497 806 Einstellplatte Post adjustment plate	8 619 498 001 Spezialzange Retaining ring remover (Zum Entfernenund Aufsetzen von Sicherungsringen) (For removing and inserting retaining rings)	8 619 498 003 Spezial-Schraubendreher H-position screw driver
8 619 497 816 Feineinstell-Schraubendreher Fine adjustment screwdriver	8 619 498 004 Einstell-Schraubendreher Post adjustment screwdriver	8 619 499 428 Winkel-Kreuzschlitz Lock screw wrench
8 619 497 814 Schmiermittel Lubricant	8 619 497 813 Kopfreiniger Head cleaning sticks	8 627 000 363 Mechanikerspiegel Mechanics mirror
8 627 000 361 Lupe Magnifying glass	8 627 000 364 Pinzette Tweezers	8 627 000 737 Winkelpinzette Angle tweezers
8 619 497 811 Sechskantschlüsselsatz Hexagonal wrench set (0.7, 0.9, 1.2, 1.5, 1.6, 2, 2.4, 3 mm)		

A. Service Hinweise
A. Service Notes

When servicing, take notice of following items.

A. Service Position

1. In the order described in the Disassembly Section, remove the Top Cover and open the Main C.B.A., page 14. Then carefully place it into the Service Position as shown in Fig. 1 - 1.

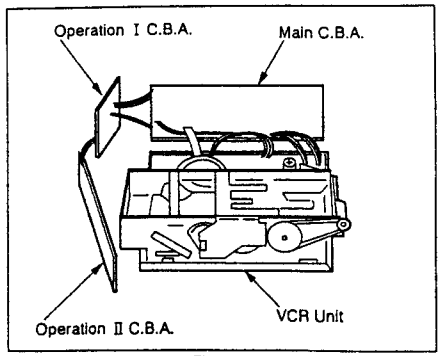


Fig. 1 - 1

2. When servicing the bottom portion of the Mechanical Chassis, remove the Mechanical Chassis from Bottom Case removing 3 Screw Covers, 2 Screws (S - 13), 2 Screws (S - 14) and Screw (S - 15) in Fig. D7, page 16.

3. Next, place the Mechanical Chassis up side down as shown in Fig. 1 - 2.

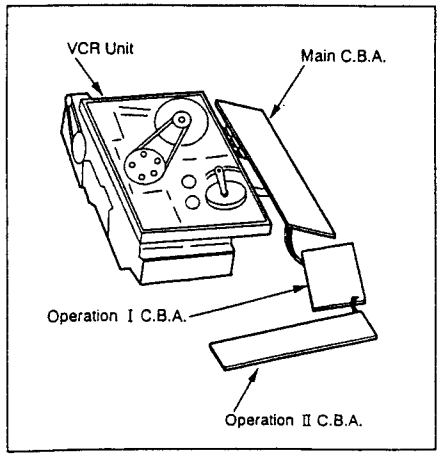


Fig. 1 - 2

B. Test Point Information

B-1. Actual Board on VCR

With this model, all Test Points use the foil solder pad for connection of the measuring equipment.

B-2. Schematic and C.B.A. Diagrams in this Service Manual on pages 48 - 98

● : Used for the indication of Test Point with No Test Pin.

B-3. Location of Test Points on page 42

○ : Used for the indication of Test Point with No Test Pin (Foil Solder Pad).

C. Simplified Fault Finding Point (TP6002)

This model has the Simplified Self- Diagnostic System to facilitate finding the cause when the Unit shuts off or stops automatically.

1. Preparation
   Connect the OSCILLOSCOPE probe to TP6002 on the System Control Section of the Main C.B.A.

2. Indication
   The Signal at TP6002 indicates the following causes.

   Note:
   In normal condition, DC +5V Signal at TP6002 is displayed.

No.	Information	Indication	Cause and characteristic
1.	Takeup Reel Lock	Low Voltage 0V	There is no TAKEUP REEL Sensor Pulse for 5 seconds or 1 second (only SEARCH MODE). (Takeup Reel Sensor Pulse at pin 68 of IC6001)
2.	Cylinder Lock	0.3Hz Pulse (Duty 50%) 3.0Sec 5V 0V	Cylinder Motor stops in the REC, PB,CUE, REVIEW, SLOW or STILL mode for 1 second. (Cylinder Lock (L) signal is detected inside IC6001)
3.	Exceeds Loading/Unloading Time	0.7Hz Pulse (Duty 50%) 1.4Sec 5V 0V	Loading/unloading time exceeds the normal loading/unloading time, with no shift to the next mode. (Position signals supplied from Mode Select Switch to pins 11-13 of IC6001)
4.	Exceeds Cassette Loading/Unloading Time	Intermittent Pulse 350mSec 2Sec 5V 0V 1.05Sec	Cassette loading/unloading time exceeds the normal cassette loading/unloading time, with no shift to the next mode. (Cassette Off (H) / Up (M) / Down(L) signal at pin 71 of IC6001)

D. Connection of the Flexible Cable to Trap Connector

Plug No.	Location of Trap Connector
D.D. Cylinder Unit - P3501	Main C.B.A.

For the Location of Pin 1 on the Trap Connectors, use the pin 1 indication on the Typical C.B.A.

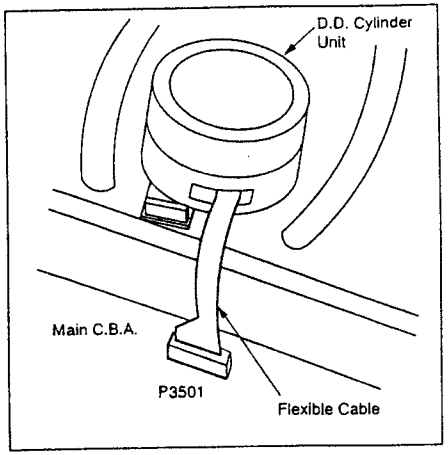


Fig. 3-1

(Removal or Installation of Flexible Cable)

a. Removal

1) On the Trap Connector, pull out both ends of the Locking Tab surrounding the cable end to release the Trap portion of the Connector. Then pull Flexible Cable out to remove as shown in Fig. 3-2.

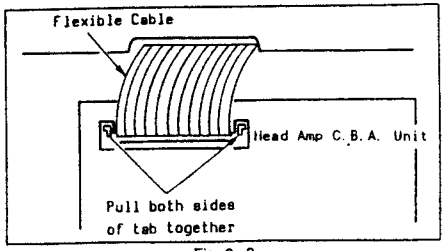


Fig. 3-2

b. Installation

1. Insert the end of the Flexible Cable into the Trap Connector so it lays smoothly across the slot.
2. Press the middle of the Cable firmly against the Trap Connector slot, and hold it securely.
3. Without pinching the Cable, press the Locking Tabs in against the Trap Connector until both ends snap into their locked position.
4. Pull lightly on the Cable to check for positive connection.

Note :
Take care when removing or installing the Flexible Cable to prevent Cable damage.

E. Cassette Tape for servicing with Left Side Down

This position is used only when servicing the Bottom portion of the Mechanical Chassis. If misloading of the cassette tape is encountered in this position, press the Cassette Tape firmly into the Cassette Up Unit with the left thumb.

F. Variable Voltage Isolation Transformer

Because a Hot Chassis Ground is present in the Power Supply Circuit, an Isolation Transformer must be used. Also, in order to have the ability to increase the input voltage slowly, when troubleshooting this type Power Supply Circuit, a variable isolation transformer is required.

G. Service Test Point (TP6001)

The detection of the Supply / Takeup Photo Transistors, Reel Sensor and Cylinder Lock will be inhibited when TP6001 is grounded on the System Control Section of the Main C.B.A.

H. Method for Manual Loading / Unloading of VCR

Turn the Center Pulley Unit in Fig. 4 clockwise (for loading) or counterclockwise (for unloading) while pushing the change lever (located on bottom side) in Fig. 5 or pushing the plunger of the solenoid (located on top side) in Fig. 6 as indicated by the arrow mark to release the lock.

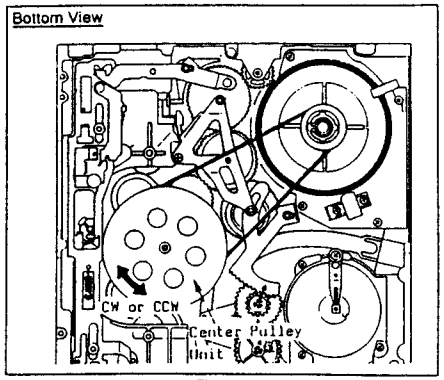


Fig. 4

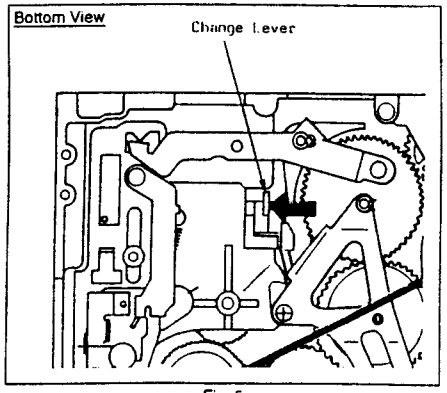


Fig. 5

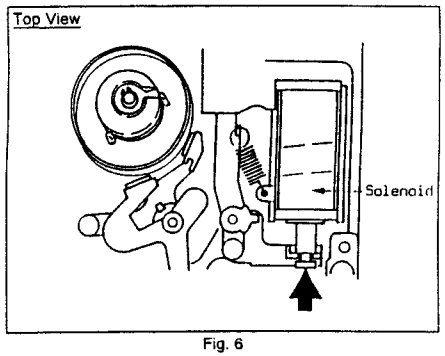


Fig. 6

I. How to place the Cassette Holder in the Down Condition without a Cassette Tape

In the Cassette Holder up condition, the VCR can not be operated, even if Service Test Point (TP6001) is grounded. To place the Cassette Holder in the down position without a cassette tape use the following procedure.

1. Hold the Lock Arm with right thumb until the Cassette Holder Unit clears the Locking Tab of the Rear Frame Unit.
2. Press the Sub Holder Unit into the loading condition with left thumb as shown in Fig.7.
3. After clearing the Locking Tab, the Cassette Holder Unit will move into down position by itself.

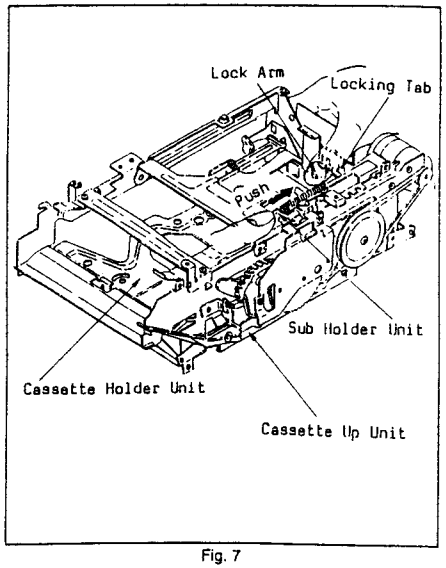


Fig. 7

J. Service of Capstan Rotor Unit

The Capstan Rotor Unit is supplied as a replacement part in a complete unit with a spring loaded Capstan pulley. Do not remove the Retaining Ring on the Capstan Pulley of the Capstan Rotor Unit.

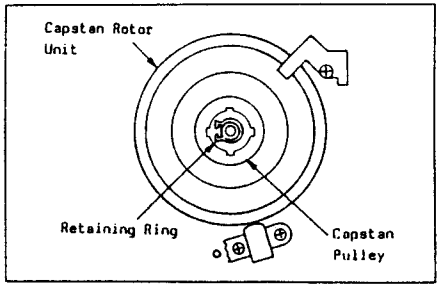


Fig. 8

K. Cleaning with Isopropyl Alcohol 91%

All Isopropyl Alcohol 91% must be removed from the tape path after cleaning by using a dry Head Cleaning Stick (8 619 497 813) or tape damage will occur.

L. How to defeat the Auto Tracking Function

To defeat Auto Tracking Function place a jumper between TP6003 and GND on the System Control Section of the Main C.B.A. in STOP Mode to maintain the Neutral Position.

M. Black Screws on the Chassis

Black Screws are used on the Mechanical Chassis to identify screws that require adjustment.

N. Service of RF Converter Unit

Since the RF Converter Unit has already been adjusted at the factory. Do not try to adjust the 4.5MHz (F) Crystal Oscillator Frequency Control.

O. Set Tracking to the Neutral Position

Eject and reinsertion of Tape will access the Neutral Tracking position.

P. How to read the Disassembly / Assembly Procedures

(For Cabinet Part)

STEP /LOC. No.	PART	REMOVAL Fig. No.	REMOVAL REMOVE * UNLOCK/RELEASE/ UNPLUG/UNCLAMP/ UNSOLDER	Note
①	Top Cover	D2	2(S-1)	...
②	Front Panel Ass'y	D3	*P4201, *P4201 (S-2)	...

① ③ ⑤ ⑥

(For Mechanical Part)

STEP/LOC. No.	START-ING No.	PART		REMOVAL Fig. No.	REMOVAL REMOVE * UNHOOK/UNLOCK/RELEASE /UNPLUG/UNSOLDER	INSTALLATION ADJUSTMENT # CONDITION
①	1	PRESSURE CAM CAP	T	DM1 DM4	*(L-1)	.....
②	1	PRESSURE ROLLER ARM UNIT	T	DM1 DM4	.....	(+) <Note 1>
③	2	PRESSURE ROLLER LIFT CAM	T	DM1 DM4	.....	See, Alignment Procedures for Mechanism Item 13-8
④	3	PRESSURE REDUCTION GEAR	T	DM1 DM4	.....	(+) See, Alignment Procedures for Mechanism Item 13-2
⑤	5	SETTING PLATE	T	DM1	(S-1)	See, Fig. A2.
⑥	6	SWITCH CAM GEAR	T	DM1 DM4	2(C-1), *2(P-1), *(P-2) <Note 2>	(+) See, Setting Condition in Fig. DM4

① ② ③ ④ ⑤ ⑥ ⑦

①: Order of steps in Procedure
When reassembling, perform the step(s) in the reverse order.
These numbers are also used as the identification (location) No. of parts in Figures.

②: Starting No. followed by corresponding part which can be removed at this stage.
See example below.
Example: Pressure Cam Cap can be removed without removing any other parts because the STEP/LOC. No. and the STARTING No. are the same.
But Pressure Roller Arm Unit can be removed only after removing Pressure Cam Cap (No.①)

③: Part to be removed or installed.

④: Location of part.
T=Top; B=Bottom

⑤: Fig. No. showing Procedure or Part Location.

⑥: Identification of part to be removed, unhooked, unlocked, released, unplugged, unclamped or unsoldered.
P=Spring; W=Washer
C=Cut Washer; R=Retaining Ring
N=Nut; S=Screw
* = Unhook, unlock, release, unplug or unsolder
2(C-2)=2 Cut Washers (C-2)

⑦: Adjustment information for installation.
= Condition for adjustment
(+): Refer to Exploded Views for Lubrication information.

Q. Replacement procedure for Leadless (Chip) Component

The following procedures are recommended for the replacement of the leadless components used in this Unit.

1. Preparation for replacement
   a. Soldering Iron
      Use a pencil-type soldering iron that uses less than 30 watts.
   b. Solder
      Eutectic Solder (Tin 63%, Lead 37%) is recommended.
   c. Soldering time
      Do not apply heat for more than 4 seconds.
   d. Preheating
      Leadless capacitor must be preheated before installation.
      (130 ℃ -150 ℃, for about two minutes.)

   Note:
   a. Leadless component must not be reused after removal.
   b. Excessive mechanical stress and rubbing of the component electrode must be avoided.

2. Removing the leadless component
   Grasp the leadless component body with tweezers and alternately apply heat to both electrodes. When the solder on both electrodes is melted, remove leadless component with a twisting motion.

   Note:
   a. Do not attempt to lift the component off the board until the component is completely disconnected from the board by a twisting action.
   b. Take care not to break the copper foil on the printed board.

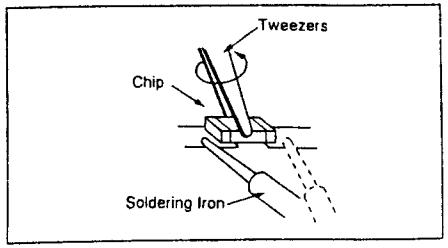


Fig. 9

3. Installing the leadless component

   a. Presolder the contact points of the circuit board.

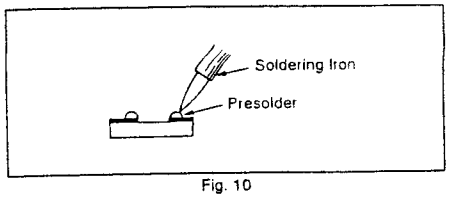


Fig. 10

   b. Press the part downward with tweezers and solder both electrodes as shown below.

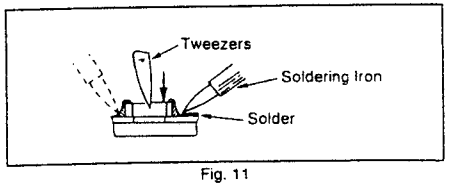


Fig. 11

Note:
Do not glue the replacement leadless component to the circuit board.

R. How to remove / install the Flat Pack IC

1. How to remove the Flat Pack IC

(with Hot Air Flat Pack IC Desoldering Equipment)

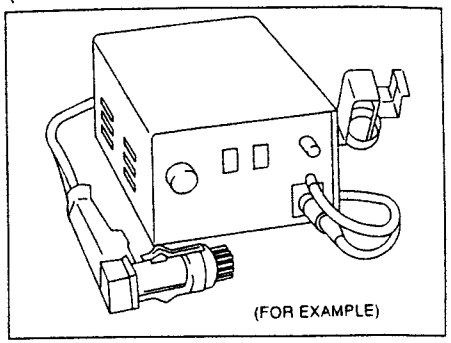


Fig. 12

(1) Prepare the Hot Air. Flat Pack IC DESOLDERING EQUIPMENT. And then apply hot air to Flat Pack IC about 5-8 seconds.
(2) Remove the Flat Pack IC with tweezers while applying the hot air.

CAUTION :

1. Do not supply the hot air to the chip parts around the Flat Pack IC for long time as damage may occur to the chip parts around the Flat Pack IC.

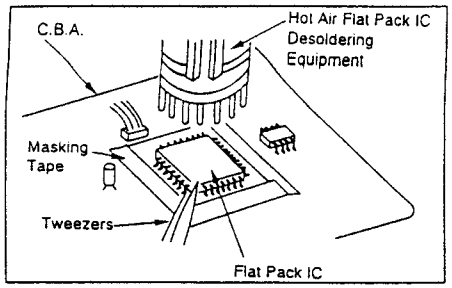


Fig. 13

Put Masking Tape around the Flat Pack IC to protect adjacent parts.

2. The Flat Pack IC on the P.C.B. is affixed with glue, so be careful so as not to break or damage any foil under the IC or at each pin when removing it.

(with Soldering Iron)

(1) Use desoldering braid to remove the solder from all pins of the Flat Pack IC.
Use solder flux applied to all pins of the Flat Pack IC to allow easy removal.

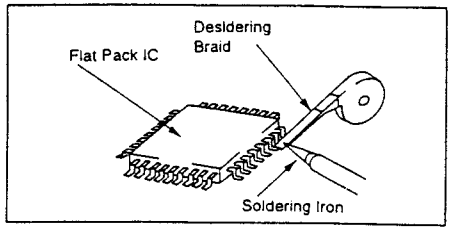


Fig. 14

(2) Lift each lead of the Flat Pack IC upward one by one using a sharp pin or non solder wire (iron wire), while heating the pins using a fine tip soldering iron or a hot air blower.

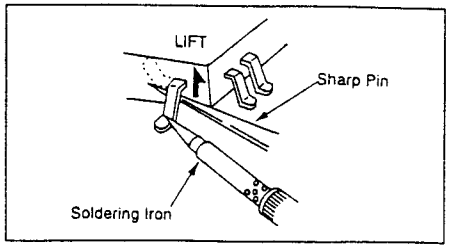


Fig. 15

(with Iron Wire)

(1) Use desoldering braid to remove the solder from all pins of the Flat Pack IC.
Use solder flux applied to all pins of the Flat Pack IC to allow easy removal.
(2) Affix the wire to workbench or solid mounting point as shown in Fig. 16.
(3) Pull up wire as the solder melts so as to lift the IC lead from the P.C.B. contact pad, while heating the pins using a fine tip soldering iron or hot air blower.

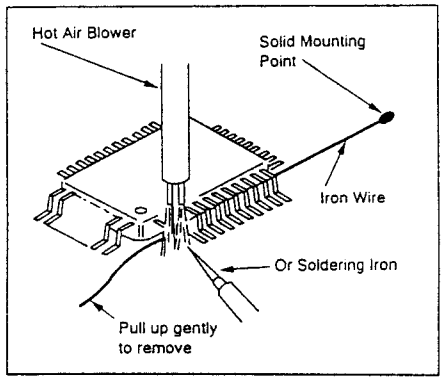


Fig. 16

Note :
When using a soldering iron care must be taken to ensure that the Flat Pack IC is not being held by glue or the P.C.B. may be damaged if force is used.
If glue is holding the IC, then heat the IC with hot air to loosen the glue.

2. How to install the Flat Pack IC

(1) Use desoldering braid to remove the solder from the foil of each pin of the Flat Pack IC on the P.C.B. so you can install a replacement Flat Pack IC more easily.
(2) The " ● " mark on the Flat Pack IC indicates pin 1. (See Fig. 17)
Make sure this mark matches the 1 on the P.C.B. when positioning for installation.
Then pre-solder the four corners of the Flat Pack IC (See Fig. 18)

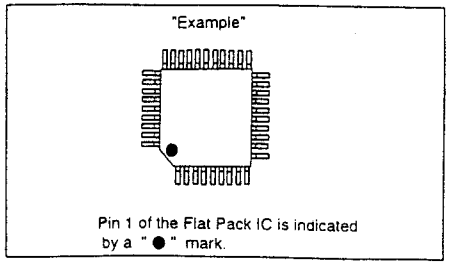


Fig. 17

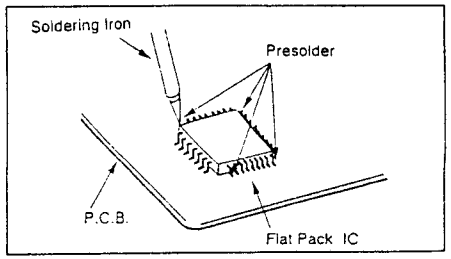


Fig. 18

(3) Solder all pins of the Flat Pack IC.
Make sure that none of the pins have solder bridges between Pins on the Flat Pack IC.

S. Special Note

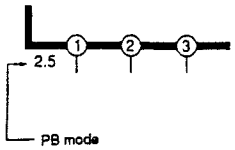
All integrated circuits and many other semiconductor devices are electrostatically sensitive and therefore require special handling techniques described under the "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" section of this service manual.

T. Voltage Measurement

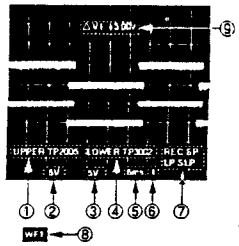
1. Voltage Chart
   a. Color bar signal in SP mode.
   b. - - - - : Unmeasurable or unnecessary to measure.

2. Schematic Diagram
   a. Audio Section
      monoscope signal in PB mode.
   b. Other Sections
      color bar signal in PB mode.

Note:
Voltage Indications for PB mode on Schematic are as shown below.



U. How to Read Waveform



① Connecting Point
② Volts/Div
③ Volts/Div
④ Connecting Point
⑤ Time/Div
⑥ Trigger Channel of the scope
(1: UPPER, 2: LOWER)
⑦ Operation Mode of VCR
⑧ Waveform Point on Schematic
⑨ △V1: Peak to Peak.

V. Indication for Zener Voltage of Zener Diodes

The Zener Voltage of Zener Diodes are indicated as such on schematic Diagrams.

Example: (6.2V)...Zener Voltage

W. "○" Marks on C.B.A. layout indicate

"○" indicates the connection point between the Foil Side and the Component Side the C.B.A.

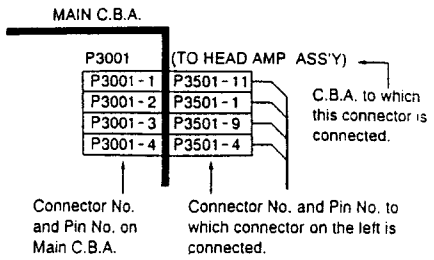
X. How to Identify Connectors on Schematic Diagram

Each connector is labeled with a connector No. and Pin No. indicating what it is connected to, in other words, its counter part.

Connections between large P.C.B.'s and small circuit Boards are illustrated on the large P.C.B. schematics.

Use the interconnection schematic diagram to find the connections between associated connectors.

Example:
The connections between C.B.A.s are as shown below.


MAIN C.B.A.
P3001
(TO HEAD AMP ASS'Y)
P3001 - 1
P3501 - 11
P3001 - 2
P3501 - 1
P3001 - 3
P3501 - 9
P3001 - 4
P3501 - 4
C.B.A. to which this connector is connected.
Connector No. and Pin No. on Main C.B.A.
Connector No. and Pin No. to which connector on the left is connected.

B. Mechanischer Abgleich
B. Mechanical Adjustment Procedure

1. DISASSEMBLY OF CABINET PARTS

1. DISASSEMBLY FLOW CHART

This flow chart indicates the disassembly steps of the cabinet parts and the P.C. Boards in order to gain access to item(s) to be serviced. When reassembling, perform the step(s) in the reverse order. Bend, route and dress the Flat Cables as they were originally.

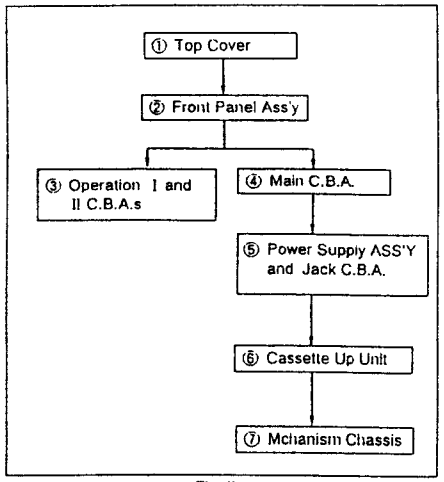

① Top Cover
② Front Panel Ass'y
③ Operation I and II C.B.A.s
④ Main C.B.A.
⑤ Power Supply ASS'Y and Jack C.B.A.
⑥ Cassette Up Unit
⑦ Mchanism Chassis

Fig. D1

2. DISASSEMBLY METHOD

STEP /LOC. No.	PART	REMOVAL		
		Fig. No.	REMOVE * UNLOCK/RELEASE/ UNPLUG/UNCLAMP/ UNSOLDER	Note
①	Top Cover	D2	2(S-1)	- - -
②	Front Panel Ass'y	D3	* P4201, * P6002, (S-2)	- - -
③	Operation I and Operation II C.B.A.s	D4	3(S-3), 5(S-4), * P7551	- - -
④	Main C.B.A.	D5	4(S-5), Shield Sheet, (S-6), (S-7), (W-1), Connectors, Clamper	- - -
⑤	Power Supply Ass'y and Jack C.B.A. Unit	D6	* P1301, (S-8), 2(S-9), * P1001	- - -
⑥	Cassette Up Unit	D7	(S-10), (S-11), P.C.B. Angle-R, 3(S-12), * (L-1)	1
⑦	Mechanical Chassis	D7	Screw Covers, 2(S-13), 2(S-14), (S-15)	2

List of Abbreviations :
2(S-1)=2 Screws (S-1)
(L-1)=Locking Tab (L-1)
(W-1)=Washer (W-1)

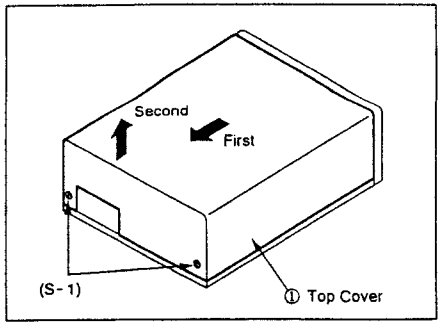


Fig. D2

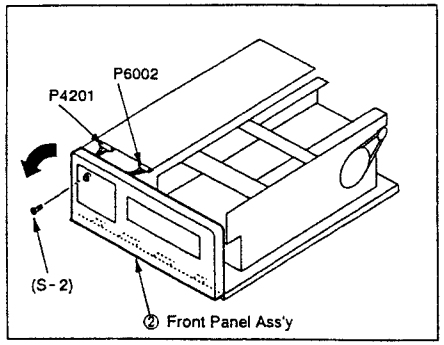


Fig. D3

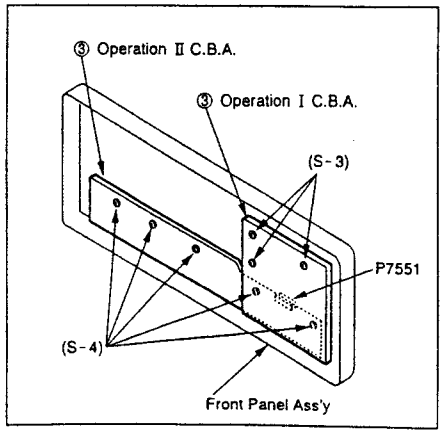


Fig. D4

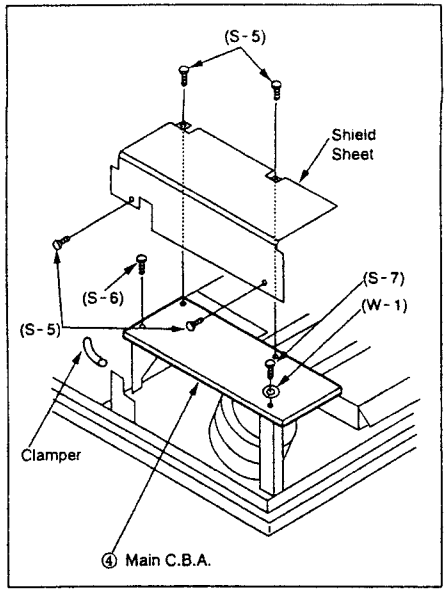


Fig. D5

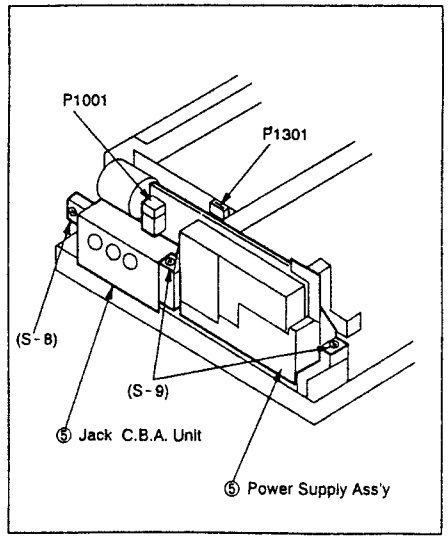


Fig. D6

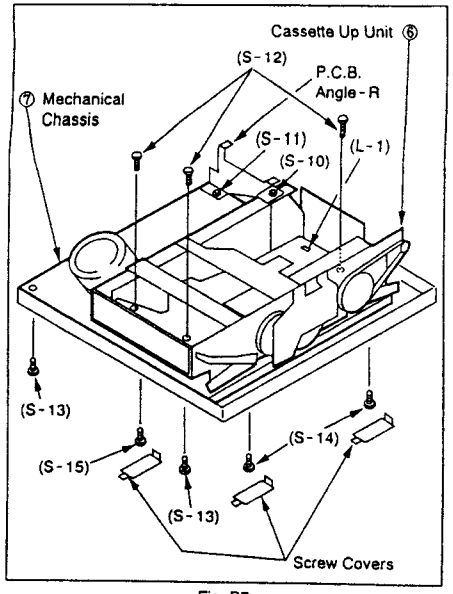


Fig. D7

Reference <Note> In Table 2 :

1. When reinstalling the Cassette Up Unit, take care so as not to place the Position Detect Switch of the Cassette Up Unit onto the Switch Cam Gear.
2. 1) Gently lift the Mechanical Chassis from the Bottom Case.
   2) When handling Mechanical Chassis, do not touch mechanical parts on it.

CAUTION :

When reinstalling the Mechanical Chassis, at first, position the left and right rear corners of the Chassis, then position other corner.

2. PROCEDURE FOR CLEANING UPPER CYLINDER UNIT

1. Position the Video Head to permit access for cleaning, and hold the Upper Cylinder to keep it from turning while cleaning.
2. Gently rub the Video Heads in the direction of tape travel with a Head Cleaning Stick (8 619 497 813) moistened with Isopropyl Alcohol 91 %.
3. Repeat for the other Video Heads.

CAUTION:

All Isopropyl Alcohol 91% must be removed from the tape path after cleaning by using a dry Head Cleaning Stick or tape damage will occur.

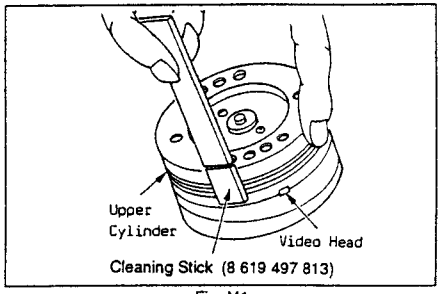


Fig. M1

Note:

1. Do not rub vertically.
2. Do not apply any pressure to the head. If contaminant is not easily removed, continued gentle wiping will usually remove it.
3. Clean the Cylinder surface with Isopropyl Alcohol 91% if fingerprints are present after cleaning the Video Head. See Caution above.

3. ADJUSTMENT PROCEDURES

1. REPLACEMENT OF UPPER CYLINDER UNIT

1-1. REMOVAL OF UPPER CYLINDER UNIT

Work with extreme care when removing or replacing the Upper Cylinder Unit. Do not touch Video Heads during servicing.

1. Unsolder only the Lead Pins which are Indicated by ' ↑ ↑ ' marks as shown in Fig. M2.
2. Remove 2 Screws with Washers (A) and gently lift the Upper Cylinder Unit from the shaft.

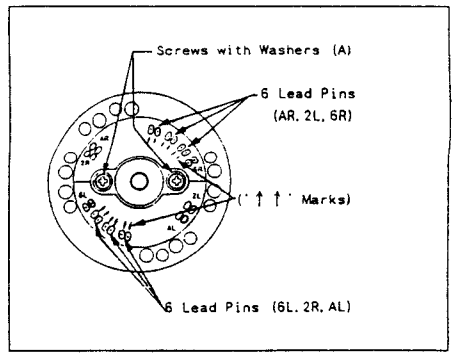


Fig. M2

1-2. CLEANING OF D.D. CYLINDER SHAFT AND THE SURFACE

1. Before reinstalling a new unit, clean the D.D. Cylinder Shaft and the surface that engages with the Upper Cylinder with a soft cloth dampened with Isopropyl Alcohol 91% in Fig. M3. See Caution under 2. Procedure for Cleaning Upper Cylinder Unit.

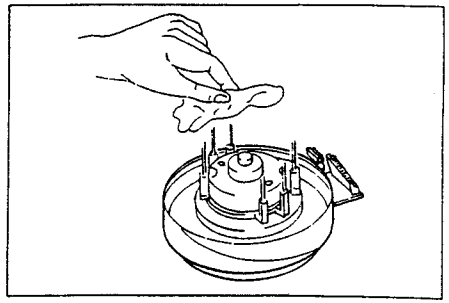


Fig. M3

1-3. REPLACEMENT OF UPPER CYLINDER UNIT

1. *Install the new Upper Cylinder Unit carefully so that the* Lead Pins are properly matched on the Head Relay Board. For details on the installation position, refer to Fig. M4.

Note:

1. Install the Lead Pins with extreme care so as not to damage them. Install the Upper Cylinder so that the color of the P.C.B. on the Upper Cylinder matches the color of the P.C.B. on the D.D. Cylinder (White to White, Green to Green)

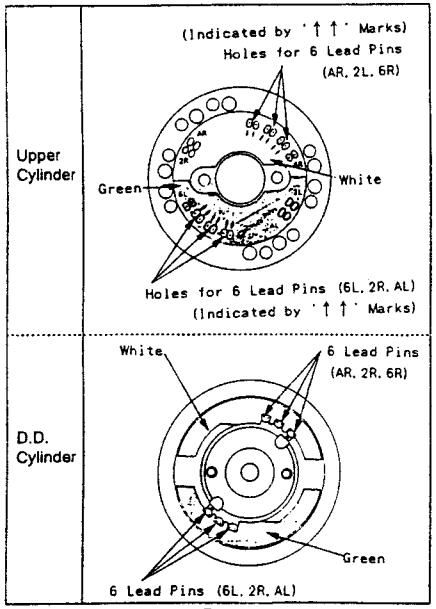


Fig. M4

2. Tighten 2 Screws with Washers (A) shown in Fig. M2 and resolder the Lead Pins to the Head Relay Board.
3. Clean the Upper Cylinder with a deerskin swab (Cleaning Stick) saturated with Isopropyl Alcohol 91%. See Caution under 2. Procedure for Cleaning Upper Cylinder Unit.

Note :

Upon completion of replacement, confirm performance. If required, perform "TAPE INTERCHANGEABILITY ADJUSTMENT", especially "HORIZONTAL POSITION ADJUSTMENT OF A/C HEAD".

2.REPLACEMENT OF D.D. CYLINDER UNIT

Work with extreme care when removing or replacing the D.D. Cylinder Unit. Do not touch Video Head during servicing.

1. Remove the Mechanical Chassis from the Bottom Case.
2. Place the Unit up side down.
3. Remove Black Screw (A) and the Grounding Plate.
4. Disconnect Connectors P3501 on the Main C.B.A. and P1502 on the D.D. Cylinder Unit.
5. Remove 3 Screws (B) and then lift the D.D. Cylinder Unit slowly from the top side.

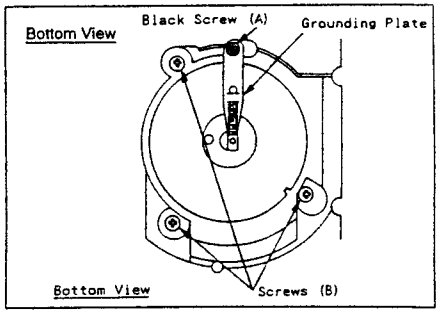


Fig. M5 – 1

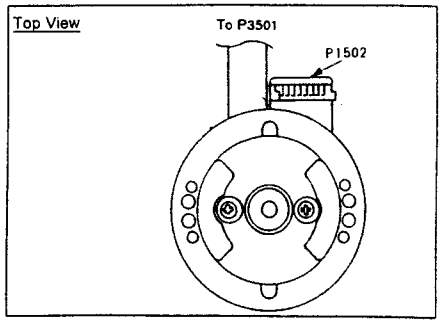


Fig. M5 – 2

Note :

Since there is very little clearance between D.D. Cylinder Unit and chassis, remove the D.D. Cylinder Unit gently and carefully.

8. Reinstall the new D.D. Cylinder Unit on the chassis by reversing the procedure previously described.

Note :

1. Reinstall the new D.D. Cylinder Unit so that the 2 projections on the chassis meet the 2 holes on lower surface of the D.D. Cylinder. Then fit the new D.D. Cylinder Unit to the chassis by turning it, refer to Fig. M5 - 3. Hold the D.D. Cylinder with extreme care so as not to touch the Heads or the tape path on the Cylinder. If they are touched then clean it with a deerskin swab (Cleaning Stick) saturated with Isopropyl Alcohol 91%. See Caution under 2. Procedure for Cleaning Upper Cylinder Unit.

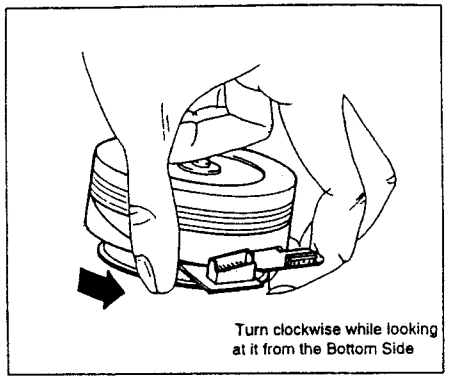


Fig. M5 – 3

2. Upon completion of replacement procedure, confirm performance. If any further maintance is required, perform "TAPE INTERCHANGEABILITY" with the alignment tape (8 627 000 540).
3. Adjustment of the Grounding Plate is required after installation. Refer to Item 3.

3. CONFIRMATION OF GROUNDING PLATE INSTALLATION POSITION

Purpose :

To optimize the position of Grounding Plate.

Symptom of Misadjustment :

May cause Cylinder rotating buzz.

1. Remove the Mechanical Chassis from the Bottom Case.
2. Stand the Mechanical Chassis with left side down.
3. Check to see if the Grounding Plate is properly set in a position just less than 1mm (but not more than 1mm) as measured from the center of the plate to the center of the Cylinder Shaft as shown in Fig. M6. If required, adjust the Grounding Plate position by loosening Black Screw (A).

Note :

Never install the Grounding Plate in the opposite position (on the front side of the center of the Cylinder Shaft), but always within a maximum of 1mm to the rear side of the center of this shaft.

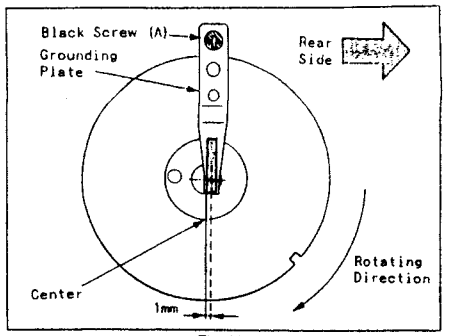


Fig. M6

4. POSITION ADJUSTMENT OF TENSION POST (PRELIMINARY)

Purpose :

To feed a constant tension to the tape so that tape runs with stability, by performing a preliminary adjustment.

Symptom of Misadjustment :

1) If the adjusted value is below the specification, the tape tension is not sufficient, thus causing a tape slack to occur.
2) If the adjusted value is above the specification, the tape tension is too high, thus causing tape damage to occur.

* Equipment Required :

2mm Hex. Wrench ..... (Purchase Locally)

1. Remove the Cassette Up Unit.
2. Connect TP6001 and GND on the System Control Section of the Main C.B.A. through a jumper wire.
3. Push the PLAY button to complete loading operation sequence.
4. As soon as loading is completed, disconnect the AC plug.
5. Insert the Hex. Wrench (2mm) into the nut on the Tension Band Fastener and adjust it (only counter-clockwise) as indicated by the arrow so that the outside edge of the Tension Post lines up with the outside of the P1 Post as shown in Fig. M7 (as viewed looking down the edge of the Cassette Side Plate (L) Unit).
6. Remove the Hex. Wrench (2mm), and the jumper (TP6001 – GND), plug in AC Cord, then complete unloading operation sequence.

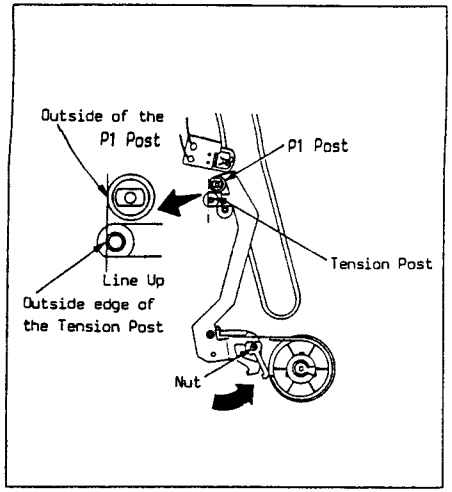


Fig. M7

5. MEASUREMENT AND ADJUSTMENT OF BACK TENSION

Purpose :
To fine adjust the Back Tension so that the tape runs stable with a constant tension.

Symptom of Misadjustment :
1) If the tape tension is less than the specified value, the tape can not come into proper contact with the Video Heads, resulting in poor picture playback.
2) If the tape tension is too high, the tape will soon be damaged.

A : Measurement Procedure

* Equipment Required :
Back Tension Meter (Made in U.S.A., Purchase Locally)
VHS Cassette Tape (120 Minute Tape)

* Specification : 23~27g

1. Remove the Top Cover.
2. Play back a cassette tape from its beginning for approx. 10 to 20 seconds, until the tape's movement has stabilized.
3. Insert Tension Meter in tape path and confirm reading.
4. If the reading is out of specification, perform the adjustment procedure.

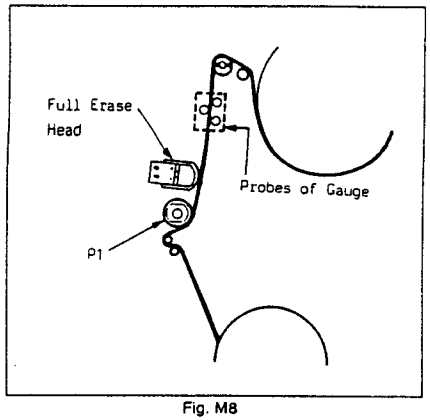


Fig. M8

Note :
1. Make sure that the three probes of the meter are all in solid contact with tape, but out of contact with any other parts while measuring.
2. It is recommended that measurements be taken three times because the tension meter is very sensitive to external vibrations.

B : Adjustment Procedure

1. Remove the cassette tape. Then re-position Tension Spring on the Tension Arm Base Teeth in either direction as indicated by the arrow to obtain the specified tension.
2. Re-position Tension Spring toward front side to increase tension, toward rear side to decrease tension.
3. Reinstall a cassette tape and verify tension with the meter once again.
4. Reinstall the Top Cover.

Note :
If the specified tension is not obtained even if the Tension Spring is re-positioned, replace the Tension Spring, replace the Tension Band, clean the Reel Table or make sure if there is no dust between Tension Band and Reel Table.

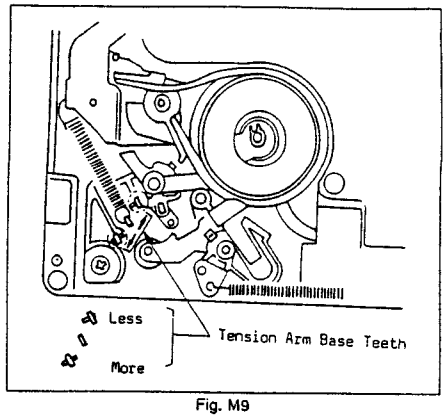


Fig. M9

6. HEIGHT ADJUSTMENT OF REEL TABLES

Purpose :
To properly align the height of the tape wound on the Supply and Take-Up Reels.

Symptom of Misadjustment :
If the height of the tape is not properly aligned, the tape will eventually be damaged.

* Equipment Required :
Post Adjustment Plate .....(8 619 497 806)
Reel Table Height Fixture .....(8 619 497 807)

* Specification ..... 0 ± 0.1mm

1. Remove the Cassette Up Unit.
2. Place the Post Adjustment Plate over the reels, and put the fixture on it. Set the fixture to zero "0" and ensure that the foot of the fixture touches the cut-out portion of the plate.

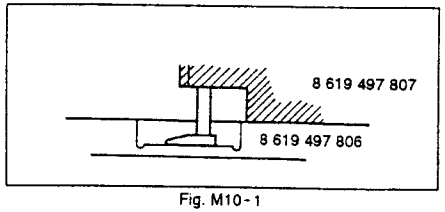


Fig. M10-1

3. Then measure the top portion of the Reel Table and compare the difference against the result of the measurement taken in the above step. Do the same for the other reel table.

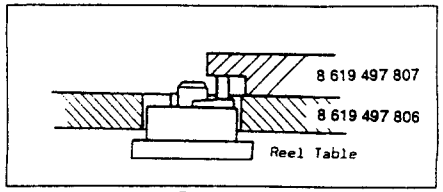


Fig. M10-2

4. If the difference is more than 0.1mm(higher or lower), adjust the height of reel table to obtain the specified height.
5. For adjustment, change the poly washer located under the reel table. (The washer is available in only one size of 0.13mm thick)
6. Reinstall the Cassette Up Unit and the cabinet parts.

7. CONFIRMATION OF TAKEUP SHAFT HOLDER ASS'Y INSTALLATION POSITION

Purpose :
To properly set the Takeup Shaft Holder ASS'Y position.

Symptom of Misadjustment :
The tape will be damaged.

1. Lift the Mechanical Chassis slightly from the Bottom Case. Turn Center Pulley Unit clockwise until post 2 and 3 are partially loaded (Refer to SERVICE NOTES AND CAUTIONS Item H).
2. Check to see if the Takeup Shaft Holder ASS'Y is properly set in a position just less than or equal to 0.2mm as measured from the right side to the center of the Shaft Holder Plate as shown in Fig. M11. If required, adjust the Takeup Shaft Holder ASS'Y position by loosening Black Screw with Washer(A).

Note:
Never install the Takeup Shaft Holder ASS'Y in the opposite position(on the left side of the center of the Shaft Holder Plate), but always within a maximum of 0.2mm to the right side of the center of this plate.

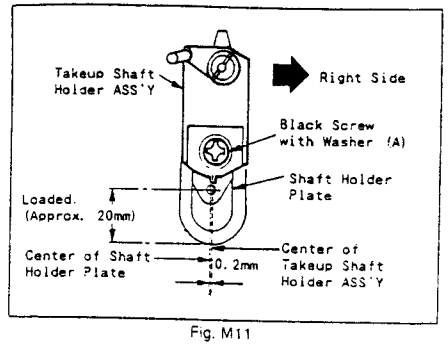


Fig. M11

8. HEIGHT ADJUSTMENT OF TAPE GUIDE POSTS (PRELIMINARY ADJUSTMENT)

* Equipment Required :
  Lock Screw Wrench ..... (8 619 499 428)
  Post Adjustment Plate ..... (8 619 497 806)
  Reel Table Height Fixture ..... (8 619 497 807)
  Post Adjustment Screwdriver ..... (8 619 498 004)

8-A. HEIGHT ADJUSTMENT OF P2 AND P3

Purpose :
To properly align the position of the tape with the Cylinder Lead so that the tape runs with stability.

Symptom of Misadjustment :
1) Since the Envelope Waveform Signal cannot be tracked properly, the Playback picture will be poor.
2) Since the tape will not run stable, the tape will eventually be damaged.
3) Tape interchangeability is poor.

1. Remove the Cassette Up Unit. Then install the Adjustment Plate.

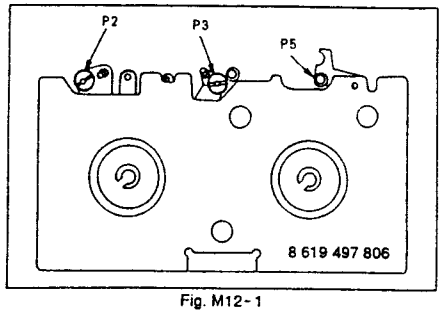


Fig. M12-1

2. First, lower all posts to match the height condition as shown in Fig. M12-2.

(The upper edge of the lower tape guide on each post should be below the bottom of the foot. Loosen Black Lock Screws located at lower portion of posts (P2 & P3) using Lock Screw Wrench, then turn the posts with Post Adjustment Screwdriver.)

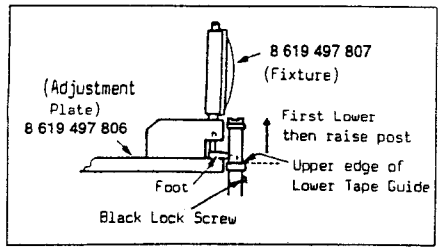


Fig. M12-2

3. Place the fixture on the Adjustment Plate and fit the foot to the Adjustment Plate as shown in Fig. M12-2.
(The foot of the fixture should be fully lowered until it touches the plate.)
4. Set the fixture to zero "0" and slowly raise the post until it just touches the foot.
When the foot touches the post, it should fit as shown in Fig. M12-3 (b). For adjustment of P2 and P3, use the Post Adjustment Screwdriver.

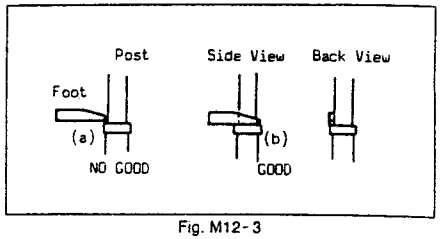


Fig. M12-3

Note:
Upon completion of adjustment, tighten the Black Lock Screws on P2 and P3 using the Lock Screw Wrench.

8-B. HEIGHT ADJUSTMENT OF P5 ARM UNIT

Purpose :
To properly align the Phase and Speed Controls during the CUE/REVIEW Modes and perform the CUE/REVIEW operations without any small additional noise in the picture.

Symptom of Misadjustment :
1) Noticeable noise appears in the picture.
2) The tape will eventually be damaged.

* Equipment Required :
  Post Adjustment Plate ..... (8 619 497 806)
  Reel Table Height Fixture ..... (8 619 497 807)
  Nut Driver (5.5 mm) ..... Purchase Locally

* Specification : 0 (+0, − 0.08) mm

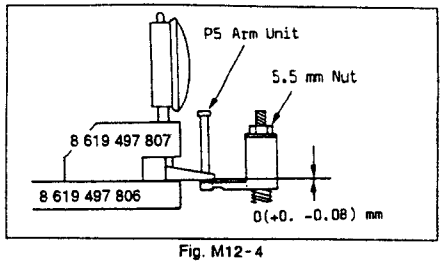


Fig. M12-4

1. Place the Post Adjustment Plate over the Reels, and put the Fixture on it. Set the Fixture to Zero "0" when the foot just touches the Post Height Adjustment Plate.
2. Slightly raise the P5 post above the plate by turning the 5.5mm Nut counterclockwise. Place the foot on the post as shown in Fig. M12-4.
3. Then slowly turn the 5.5mm Nut clockwise until the fixture reads the specified height.
4. Remove the Post Adjustment Plate. Reinstall the Cassette Up Unit.

Note:
Upon completion of above procedure, play back the tape and confirm that the tape runs properly without curling between lower and upper limits of P5 Post. Also confirm that the tape is running smoothly.
If adjustment is required, slightly turn the 5.5mm Nut until the curling smoothes out.

9. TAPE INTERCHANGEABILITY ADJUSTMENT(FINAL ADJUSTMENT)

Note :
To perform these adjustment/confirmation procedures, make sure that the Tracking Control is set in the Neutral position.

* Equipment Required :
  Dual Trace Oscilloscope
  PAL VHS Alignment Tape ..... (8 627 000 540)
  Post Adjustment Screwdriver ..... (8 619 498 004)
  H-Position Adjustment Fixture ..... (8 619 498 003)
  Lock Screw Wrench ..... (8 619 499 428)
  Nut Driver (7 mm) ..... Purchase Locally

9-A. CONFIRMATION OF TAPE TRAVEL

Purpose :
To make sure that the tape run is well stabilized.

Symptom of Misadjustment :
If the tape travels with instability, the tape will be damaged.

1. Play back a cassette tape and confirm that the tape travels without curling at the upper and lower guides on posts P2 and P3.

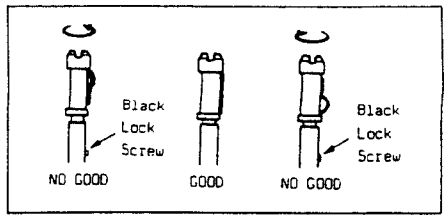


Fig. M13

2. If curling is apparent, adjust the height of posts by turning the top of post with the Post Adjustment Screwdriver. (for P2 & P3)

Note:
Before turning P2 and P3, slightly loosen the Black Lock Screw using the Lock Screw Wrench.

9-B. CONFIRMATION OF A/C HEAD HEIGHT

Purpose :
To make sure the tape runs properly along the Control Head.

Symptom of Misadjustment :
If the control signal is not properly picked up, Servo Operation can not be achieved.

This confirmation is required when the A/C Head is replaced and for a preliminary height adjustment. For final adjustments, perform items 9-C and 9-D.

1. Looking at the lower edge of the Control Head with the T120 tape in motion, ensure that the lower edge of the tape runs 0.25mm above the lower edge of the control head.
If it doesn't, turn 7mm Nut (A) slightly in either direction as necessary to correct it. Turn clockwise to lower the head and counterclockwise to raise it.

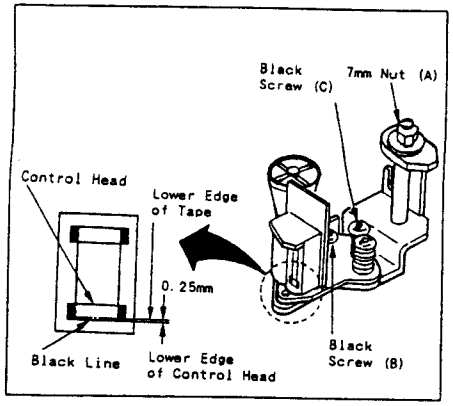


Fig. M14

9-C. CONFIRMATION OF TILT OF A/C HEAD

Purpose :
To confirm that the tape run is well stabilized. In particular, confirm that the tape properly picks up the Audio Signal at the upper part and the Control Signal at the lower part.

Symptom of Misadjustment :
If the tilt of the A/C Head is poorly adjusted, the tape will be eventually damaged.

1. Play back a T120 Cassette tape and confirm that the tape runs properly between lower and upper limits of P4 post. Also confirm that the tape is running smoothly.
2. If adjustment is required, turn Black Screw (C), in Fig. M14, clockwise until curling is apparent at lower edge of P4. Then turn Black Screw (C) counterclockwise until the curling smoothes out.

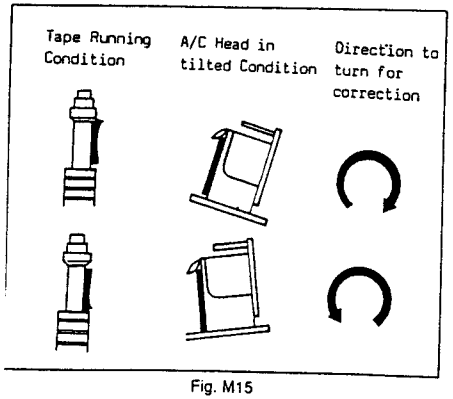


Fig. M15

9-D. HEIGHT AND AZIMUTH ADJUSTMENT OF A/C HEAD

Purpose :
To adjust the position and height of the A/C Head so that it meets the tape tracks properly.

Symptom of Misadjustment :
If the position of the A/C Head is not properly adjusted, the Audio S/N Ratio is also poor.

1. Connect the oscilloscope to the audio output jack on the rear of the deck.
2. Play back the monoscope portion (6 kHz, Mono) of the alignment tape (8 627 000 540).
3. Adjust Black Screw (B) on the head base in Fig. M14 so that the output level is at a maximum.

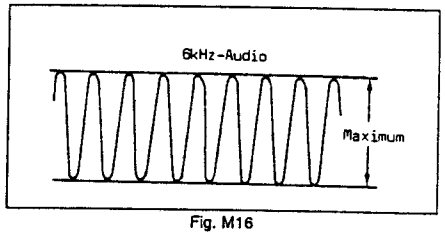


Fig. M16

4. Readjust 7mm Nut (A) shown in Fig. M14 for maximum output.
5. Disconnect the oscilloscope.

9-E. HORIZONTAL POSITION ADJUSTMENT OF A/C HEAD

Purpose :
To adjust the Horizontal Position of the A/C Head.

Symptom of Misadjustment :
If the Horizontal Position of the A/C Head is not properly adjusted, maximum envelope can not be obtained at the Neutral Position of the Tracking Control Circuit.

Place a jumper between TP6003 and GND on the System Control Section of the Main C.B.A. to defeat Auto Tracking.

1. Eject the tape and reinsert it again, this will access the Neutral Tracking position. Connect the oscilloscope to TP3002 on the Video Signal Process Section of the Main C.B.A.
   Use TP6205 as a trigger.
2. Play back the monoscope portion of the alignment tape (8 627 000 540) and confirm that the RF envelope appears, as in Fig. M 18 - 1.
3. If adjustment is required, set the H - Position ADJ. Fixture into the slot of the Adjustment Nut and slowly turn either right or left so that the envelope is at a maximum.

4. Before finding the center of the maximum period of the envelope, rotate the Adjustment Nut back and forth slightly to confirm the limits on either side of the maximum period.
5. Push the Tracking Control UP Button (on the Front Panel Ass'y) several times (count the number of times pushed) until the maximum envelope is reduced to 1/2.
6. Re - set the tracking to the neutral position by ejecting the tape and reinserting it. Push the Tracking Control DOWN Button (on the Front Panel Ass'y) several times (count the number of times pushed) until the maximum envelope is reduced to 1/2.
7. If the number of pushes is not the same, then rotate the adjustment nut back and forth slightly to find the center point. Then repeat the above procedure until the center point is determined.

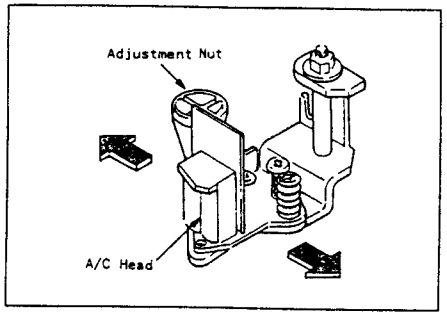


Fig. M17

9-F. CONFIRMATION/ADJUSTMENT OF ENVELOPE OUTPUT

Purpose :
To achieve a satisfactory picture and secure precise tracking.

Symptom of Misadjustment :
If the envelope is output poorly, much noise will appear in the picture. Then the tracking will lose precision and the playback picture will be distorted by any slight variation of the tracking control circuit.

Place a jumper between TP6003 and GND on the System Control Section of the Main C.B.A. to defeat Auto Tracking.

1. Eject the tape and reinsert it again, this will access the Neutral Tracking position. Connect the oscilloscope to TP3002 on the Video Signal Process Section of the Main C.B.A. Use TP6205 as a trigger.
2. Play back the monoscope portion of the alignment tape (8 627 000 540) and adjust the height of posts P2 and P3 watching the scope display so that the envelope becomes as flat as possible.
   (V1/V - max ≥ 0.7, V2/V - max ≥ 0.8)

   If adjustment is required, turn top of post with Post Adjustment Screwdriver. For adjustment of P2 and P3, refer to Item 9 - A and it's Note.

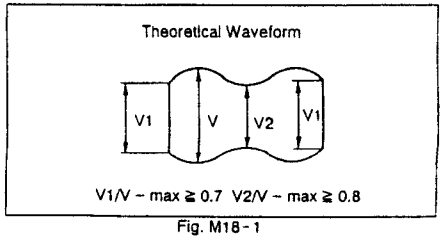


Fig. M18 - 1

3. When the scope display is as shown in Fig. M18 - 2, adjust the height of P2 so that the waveform looks like Fig. M18 - 4.

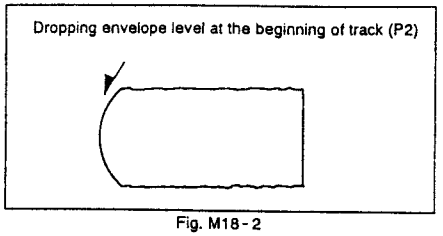


Fig. M18 - 2

4. When the scope display is as shown in Fig. M18 - 3, adjust the height of P3 so that the waveform looks like Fig. M18 - 4.

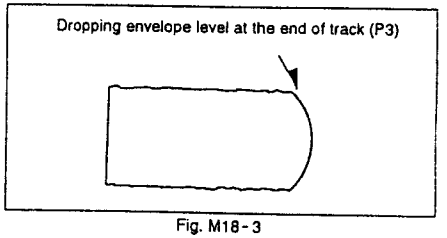


Fig. M18 - 3

5. When P2 and P3 are adjusted properly, there is no Envelope Drop at the beginning or end of the track as shown in Fig. M18 - 4. Remove the jumper wire.

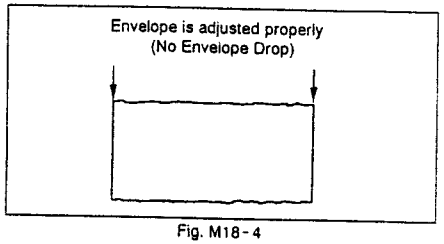


Fig. M18 - 4

Note:
Upon completion of adjustment of P2 and P3, tighten the Black Lock Screws on P2 and P3 using the Lock Screw Wrench. Then confirm the Horizontal Position of A/C Head by pushing the Tracking Control Up or Down Buttons (on the Front Panel Ass'y) alternately to check the symmetry of the envelope. And if required, perform "Horizontal Position Adjustment of A/C Head".

10. ADJUSTMENT OF FG HEAD GAP

Purpose :
To properly pick up the FG Signal.

Symptom of Misadjustment :
If the FG Signal is not properly picked up, Servo Operation can not be achieved.

* Equipment Required :
Oscilloscope
Fine Adjustment Screwdriver .....(8 619 497 816)

* Specification : 0.1 ~ 0.13 mm

1. Remove the Mechanical Chassis from Bottom Case. And then place the Mechanical Chassis up side down (Refer to Service Notes and Cautions Item A).
2. Slightly loosen 2 Black Screws (A) and set the Fine Adjustment Screwdriver into Hole (B) as shown in Fig. M19. Turn screwdriver clockwise until the FG Head touches the rotor. Then turn it slightly counterclockwise to the clearance as specified.
3. Tighten 2 Black Screws (A) in Fig. M19.

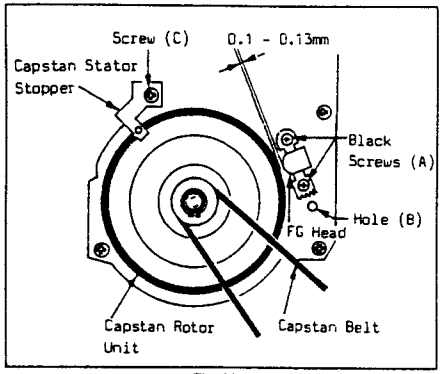


Fig. M19

Note :
1. Do not touch the outside circumference of the rotor surface with any tool and keep magnetic material away from the rotor magnet (especially metal particles).
2. Upon completion of above procedure, confirm that the FG Head output level is more than 10mVp-p, see preparation below. If the level is not more than 10mVp-p, re-adjust the FG Head Gap so that the FG Head output level is more than 10mVp-p.

(Preparation)

1) Supply a Video Signal to the Video Input Jack on the rear of the deck.
2) Insert a cassette tape and place the unit in SLP recording Mode.
3) Connect the oscilloscope to the terminals of the FG Head.

11. REPLACEMENT OF CAPSTAN ROTOR OR STATOR UNIT

1. Remove the Capstan Belt (Fig. M19).
2. Remove Screw (C) and the Capstan Stator Stopper in Fig. M19.
3. Carefully pull out the Capstan Rotor Unit, taking care so as not to lose the 2 Dust Seals as shown in Fig. M20.

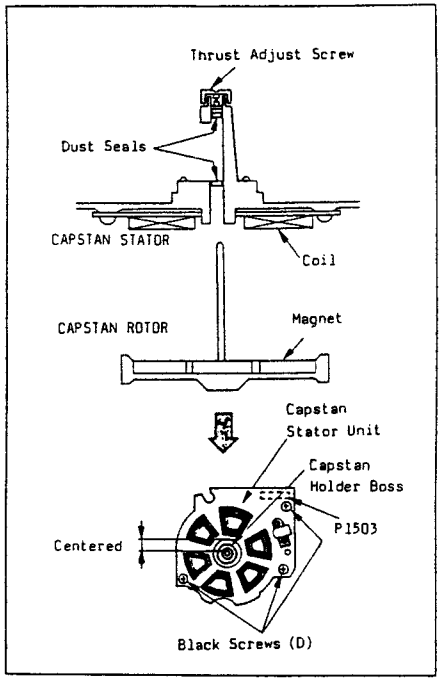


Fig. M20

4. Unplug Connector P1503 on the Capstan Stator Unit. Remove 3 Black Screws (D) and then lift the Capstan Stator Unit.
5. Replace the new Capstan Stator Unit and then tighten 3 Black Screws (D). Plug Connector P1503 on the Capstan Stator Unit.

Note:
When reinstalling the Capstan Stator Unit, the Capstan Holder Boss must be centered within the hole in the Capstan Stator Unit.

6. Before replacement of new Capstan Rotor Unit, loosen the Thrust Adjust Screw completely.
7. Replace the new Capstan Rotor, carefully inserting the 2 Dust Seals as shown in Fig. M20.

Note :
1) The Capstan Rotor Unit is supplied as a replacement part in a complete unit with a spring loaded Capstan Pulley. Do not remove the Retaining Ring on the Capstan Pulley of the Capstan Rotor Unit.
2) Hold the new Capstan Rotor Unit firmly, when replacing it, so the rotor will not be pulled toward the stator too quickly (due to magnetic force). Placing some paper on the coils before rotor installation may prevent accidental damage to the coils if the above caution is not observed.
3) During replacement, do not touch the Capstan Shaft with any hard material like drivers or tweezers.

8. Re-install the Capstan Stator Stopper with Screw (C), in Fig. M19.

····ADJUSTMENT OF THRUST ADJUST SCREW AND DUST SEALS····

9. Re-install the Capstan Belt and while exerting pressure to turn the Center Pulley Unit, tighten the Thrust Adjust Screw slowly until the Capstan Rotor just starts turning.
10. At the point where the Capstan Rotor starts turning, tighten the Thrust Adjust Screw another 180° CW.
11. Upon completion of above procedure, confirm that these 2 Dust Seals are positioned as shown in Fig. M21. And then, wipe off the Capstan Shaft to remove oil, grease and dust.

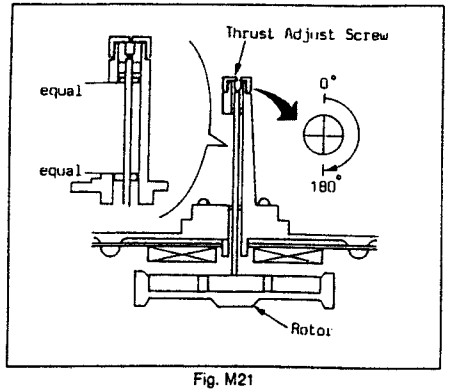


Fig. M21

12. DISASSEMBLY/ASSEMBLY PROCEDURES OF MECHANISM

This procedure starts with the condition that the cabinet parts, Cassette Up Unit and Mechanical Chassis have been removed. Also, all the following procedures for adjustment and part replacement should be performed in STOP Mode. When reassembling, perform the step(s) in the reverse order.

STEP /LOC. No.	START - ING No.	PART		REMOVAL Fig. No.	REMOVAL REMOVE * UNHOOK/UNLOCK /RELEASE /UNPLUG /UNSOLDER	INSTALLATION ADJUSTMENT #CONDITION
①	1	PINCH CAM CAP	T	DM1 DM4	* (L-1)	.....
②	1	PRESSURE ROLLER ARM UNIT	T	DM1 DM4	.....	(+) < Note 1 >
③	2	PRESSURE ROLLER LIFT CAM	T	DM1 DM4	.....	See, Alignment Procedures for Mechanism Item 13-8.
④	3	PRESSURE REDUCTION GEAR	T	DM1 DM4	.....	(+) See,Alignment Procedures for Mechanism Item 13-2.
⑤	5	SETTING PLATE	T	DM1	(S-1)	See, Fig. A2.
⑥	6	SWITCH CAM GEAR	T	DM1 DM4		(+) See, Alignment Procedures for Mechanism Item 13-6.
⑦	7	MAIN BRAKE ASS'Y	T	DM1 DM5	2(C-2),*2(P-1),*(P-2) < Note 2 >	(+) See, Setting Condition in Fig. DM5.
⑧	7	TENSION BAND ASS'Y	T	DM1 DM8	*(P-3),*(L-2),(R-1)	(+) See, Position Adjustment of Tension Post.
⑨	2	P5 SECTOR GEAR	T	DM1 DM7	*(L-3) < Note 2 >	See, Alignment Procedures for Mechanism Item 13-7.
⑩	9	P5 ARM UNIT	T	DM1 DM7	(N-1),(W-1),*(P-4)	(+) STOP < Note 3 > See,Height Adjustment of P5 Arm Unit .
⑪	11	TAKEUP REEL TABLE	T	DM1	(R-2)	(+) < Note 5 > See,Height Adjustment of Reel Tables.
⑫	8	SUPPLY REEL TABLE	T	DM1	(R-3)	
⑬	13	CAM FOLLOWER ARM UNIT	B	DM2	(R-4)	< Note 4 >
⑭	13	MAIN/SUB LEVER ASS'Y	B	DM2 DM8	2(C-2) < Note 2 >	See, Setting Condition in Fig. DM8.
⑮	14	CENTER PULLEY ASS'Y	B	DM2 DM9	(C-3), Capstan Belt < Note 2 >	(+) See, Fig. DM9.
⑯	15	CLUTCH DISK ASS'Y	B	DM2 DM10	(C-4) < Note 2 >	See, Alignment Procedures for Mechanism Item 13-4.
⑰	17	SPAN LIMITER	B	DM2 DM10	(S-2),3(R-5),(W-2) Capstan Belt	.....
⑱	17	SUN GEAR	B	DM2 DM10	(W-3)	(+) See, Alignment Procedures for Mechanism Item 13-4.
⑲	18,13	MAIN CAM GEAR	B	DM2 DM10	.....	(+) See, Alignment Procedures for Mechanism Items 13-2 and 13-3.
⑳	19	DETENT ARM	B	DM10	.....	(+) .....
㉑	20	SUB CAM GEAR	B	DM4 DM10	.....	(+) See, Alignment Procedures for Mechanism Item 13-1.
㉒	17	RETAINER GEAR ASS'Y	B	DM10	.....	(+) See, Alignment Procedures for Mechanism Item 13-3.
㉓	17	SECTOR GEAR UNIT	B	DM2 DM10	.....	(+) See, Alignment Procedures for Mechanism Item 13-5 . < Note 6 >

STEP /LOC. No.	START - ING No.	PART		REMOVAL Fig. No.	REMOVAL REMOVE * UNHOOK /UNLOCK/RELEASE /UNPLUG /UNSOLDER	INSTALLATION ADJUSTMENT #CONDITION
㉔	23,18	LOADING CAM GEAR	B	DM10	.....	(+) See, Alignment Procedures for Mechanism Item 13-3. < Note 6 >
㉕	24,22 21	RING GEAR	B	DM10	.....	(+) See, Alignment Procedures for Mechanism Item 13-1.
㉖	21	RELEASE LEVER UNIT	B	DM12	(S-3)	(+) See, Setting Condition in Fig. DM12.
㉗	26	INTERMEDIATE GEAR	B	DM13	*(L-4), (W-4) < Note 2 >	.....
㉘	27	DRIVE DISK	B	DM13	.....	.....
㉙	29	LOADING ARM - S UNIT	B	DM2 DM10	*(L-5)	(+) See, Alignment Procedures for Mechanism Item 13-5.
㉚	23,15	LOADING ARM - T UNIT	B	DM2 DM10	*(L-6)	
㉛	15	SUPPLY REEL GEAR UNIT	B	DM9	*(C-5) < Note 2 >	(+) .....
㉜	15	TAKEUP REEL GEAR UNIT	B	DM9	*(C-6) < Note 2 >	(+) .....
㉝	15	STOPPER BASE ASS'Y	B	DM11	(S-4)	.....
㉞	33	PLAY ARM UNIT	B	DM13	.....	.....
㉟	34,25	PLAY SET ARM	B	DM13	*(L-7)	.....
㊱	12	TENSION ARM BASE UNIT	T B	DM1 DM2	(S-5), *(L-8)	(+) See, Measurement and Adjustment of Back Tension.
㊲	3	CAPSTAN HOLDER ASS'Y	T	DM1	3(S-6)	(+) See, Replacement of Capstan Rotor or Stator Unit.
㊳	38	MODE SELECT SWITCH ASS'Y	T	DM1	(S-7) *Connections	See, Alignment Procedures for Mechanism Item 13-8.
㊴	39	A/C HEAD UNIT	T	DM1 DM3	(N-2),(W-3),*(P-5)	(+) See, Confirmation of A/C Head Height.
㊵	39	CHASSIS P.C.B.	T	DM1 DM14	2(S-8),*P1553 *Connections	.....
㊶	41	SOLENOID UNIT	T	DM1 DM15	(S-9),*(P-8) *Connections	.....
㊷	41	SOLENOID LEVER UNIT	T	DM15	*(L-9)	(+) .....
㊸	42	V STOPPER (L,R)	T	DM1	4(S-10)	.....
㊹	29,42	LOADING POST BASE - S UNIT	T	DM1	Slide to rear to remove	(+) .....
㊺	30,42	LOADING POST BASE - T UNIT	T	DM1	Slide to rear to remove	
㊻	46	D.D CYLINDER UNIT	B	DM2	3(S-11)	See, Replacement of D.D. Cylinder Unit.
㊼	47	SUB LOADING ARM UNIT	T	DM16	*(P-7), *(L-10)	.....

List of Abbreviations:
T= Top; B= Bottom
(R-1)=Retaining Ring (R-1); 2(P-1)=2 Springs (P-1); (S-1)=Screw (S-1);
(W-1)=Washer (W-1); 3(S-5)=3 Screws (S-5); (C-1)=Cut Washer(C-1);
(N-1)=Nut (N-1); (L-1)=Locking Tab (L-1)
(+) : Refer to Exploded Views for Lubrication information.

Ansicht von oben
Top view

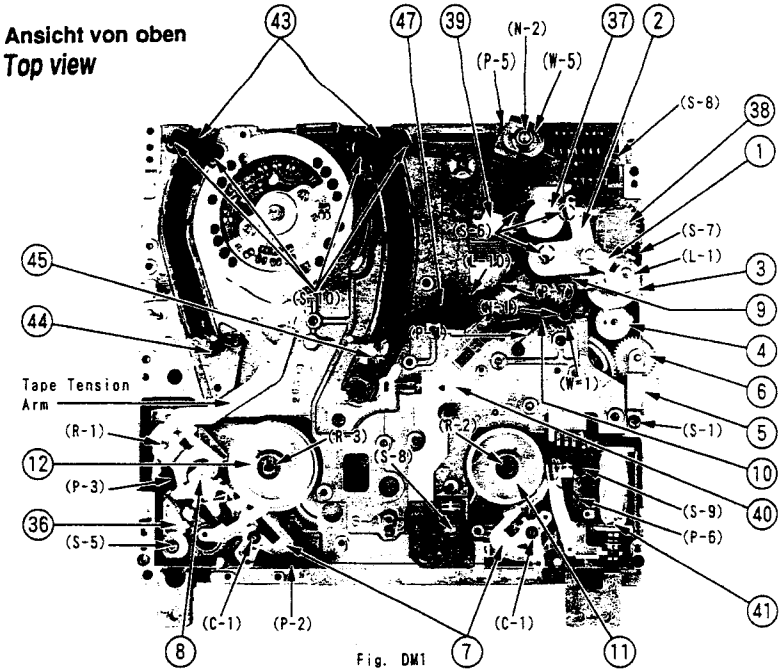


Fig. DM1

Ansicht von unten
Bottom view

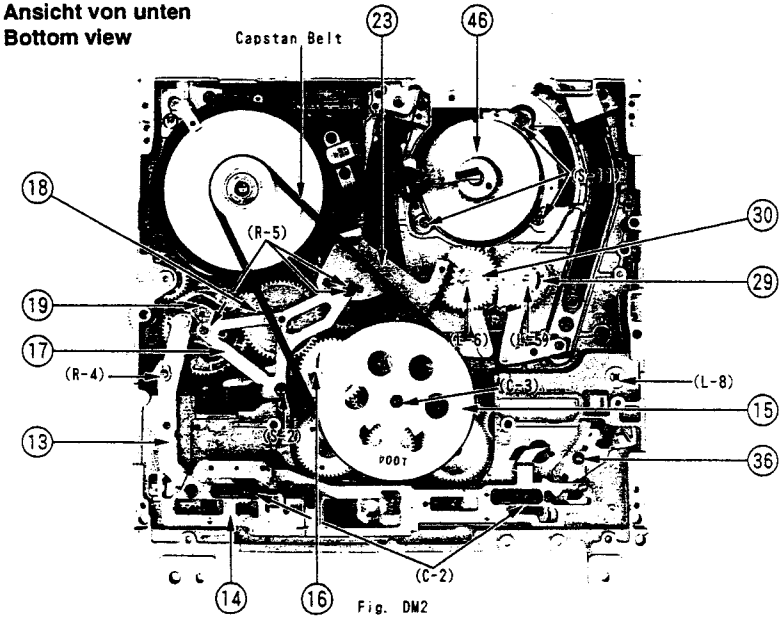


Fig. DM2

A/C Head Spring Hooking Position

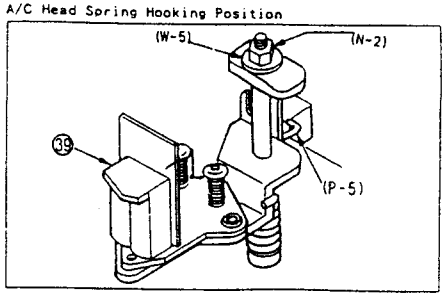


Fig. DM3

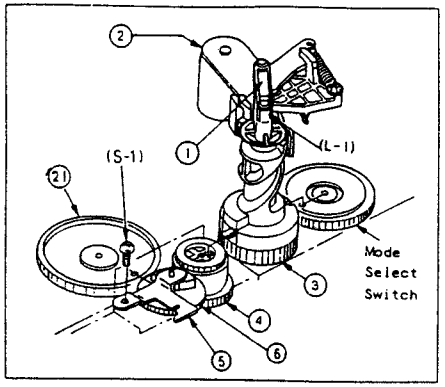


Fig. DM4

Main Brake Springs Hooking Position

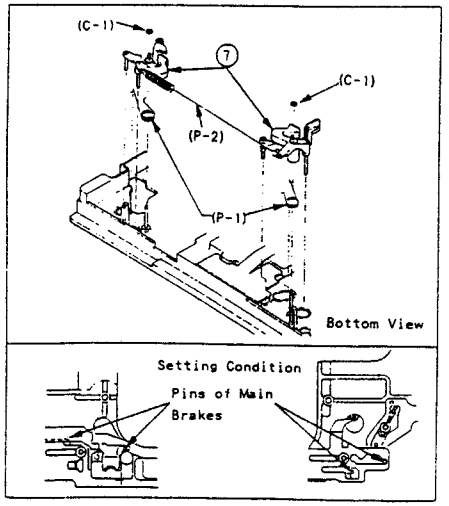


Fig. DM5

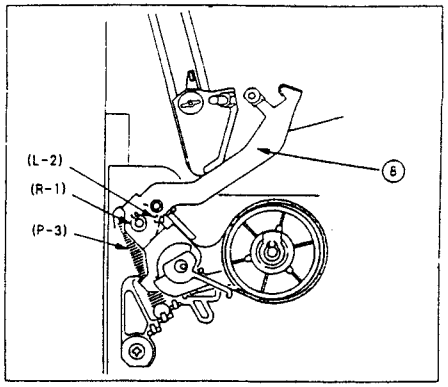


Fig. DM6

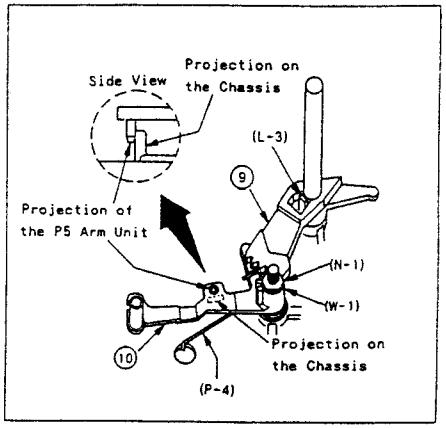


Fig. DM7

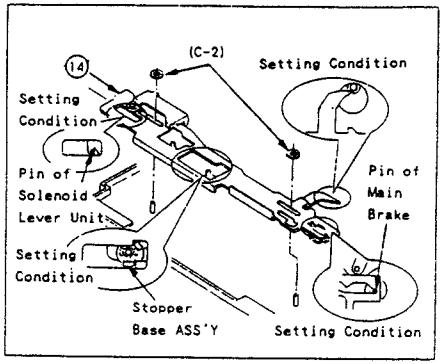


Fig. DM8

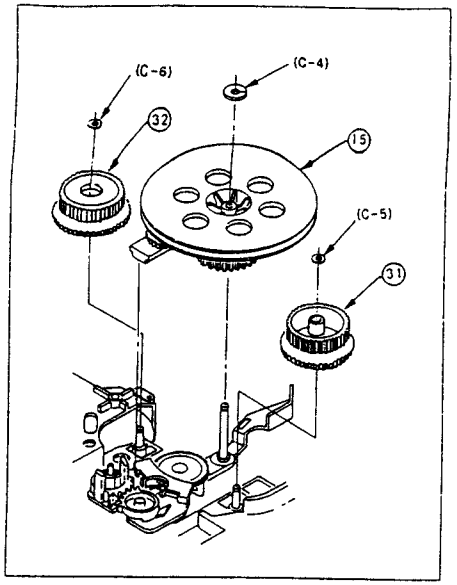


Fig. DM9

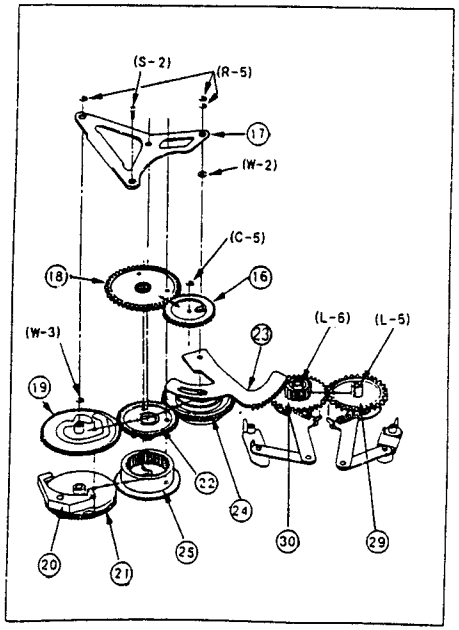


Fig. DM10

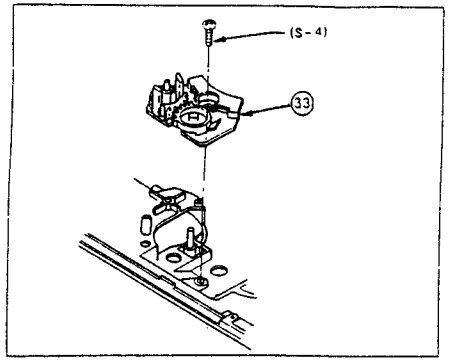


Fig. DM11

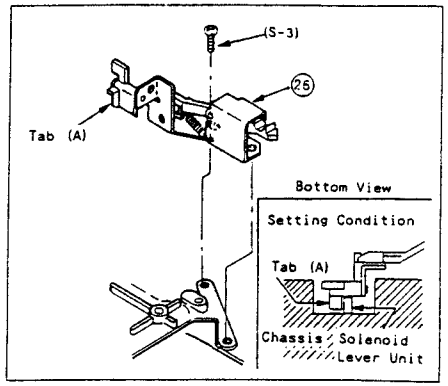


Fig. DM12

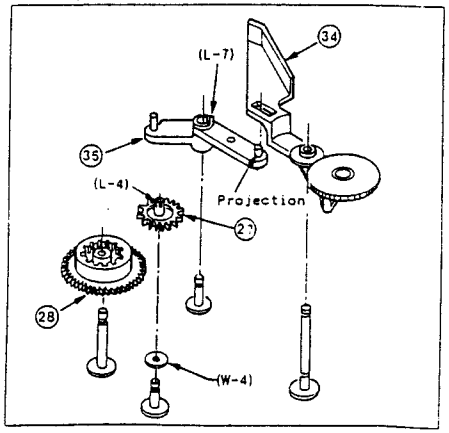


Fig. DM13

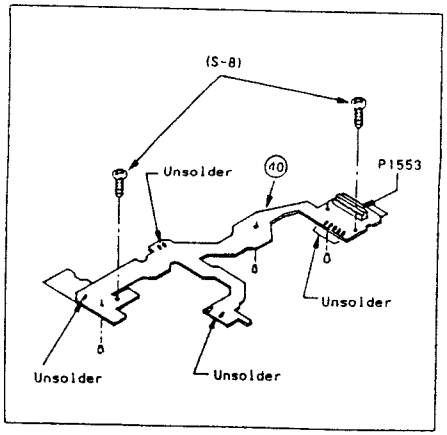


Fig. DM14

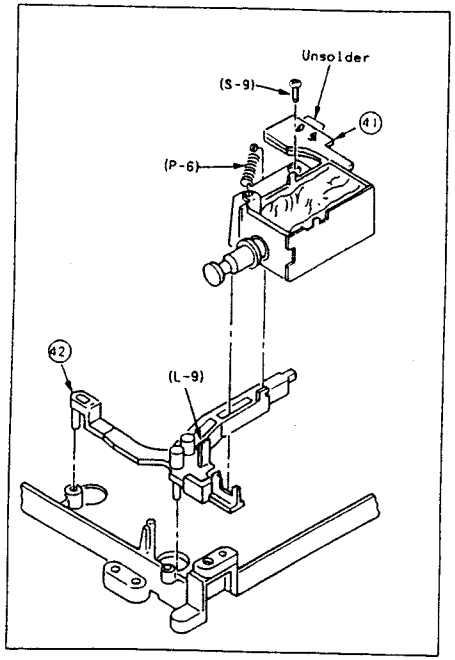


Fig. DM15

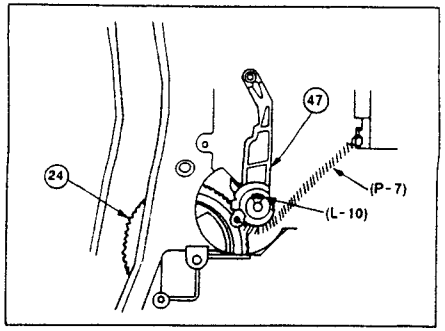


Fig. DM16

Reference <Notes> in Table 12 :

1. Wiggle it sideways to properly seat the Pressure Roller Arm Unit.
2. This cut washer is not reusable. If removed, install a new one.
3. Install the P5 Arm Unit so that the projection of the P5 Arm Unit is positioned in back of the projection on the chassis, as shown in Fig. DM7.
4. Install the Cam Follower Arm Unit so that the pin on the Cam Follower Arm Unit meets the inner slot of the Main Cam Gear.
5. When reinstalling the Supply and Takeup Reel Tables, clean the rotating surface of them with a soft cloth.
6. Ensure the Tape Tension Arm is positioned as shown in Fig. DM1 for STOP Mode.

13. ALIGNMENT PROCEDURES OF MECHANISM

The mechanism of this model is mostly engaged to the System Control Circuit, through the mode select switch. Therefore the relation between the mode select switch and the cam gear decides all further mechanical movement of the mechanical parts such as levers, gears, rollers and so on. For specific removal and installation procedures, refer to the Disassembly/Assembly Procedures on page 28.

If these parts are not properly aligned and only off by one tooth, the unit will be unloaded or stopped.It may result in damage to the mechanical or electrical parts. The overall mechanical condition of the bottom and top views are shown in Fig. A1 and Fig. A2. This mechanical adjustment is performed in the Half Load Stop (FF/REW) Mode. The detail of mechanical condition will be described later.

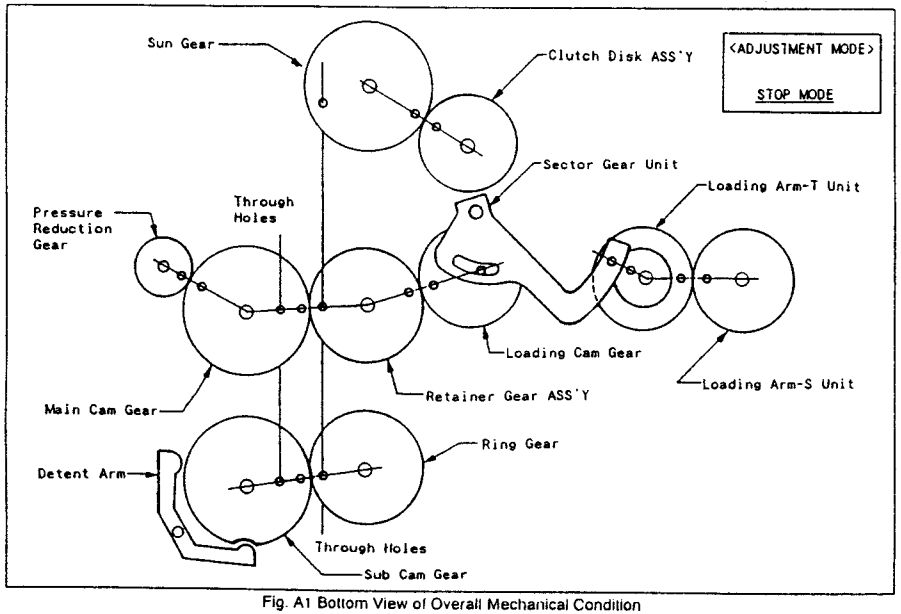


Fig. A1 Bottom View of Overall Mechanical Condition

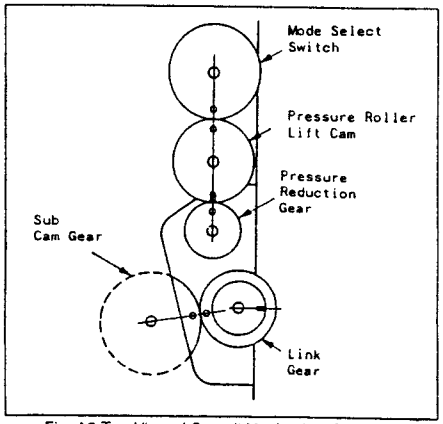


Fig. A2 Top View of Overall Mechanical Condition

Important Note :
All through hole alignments must be made precisely so that the complete procedure will exactly align the gear teeth. If the alignment is off by only one tooth then the mechanism will not operate properly.

13-1. ALIGNMENT PROCEDURES OF SUB CAM GEAR, RING GEAR AND DETENT ARM

1. Install the Ring Gear so that the holes on Ring Gear are exactly in line with the holes on chassis as shown Fig. A3.
2. Install the Sub Cam Gear so that the hole on Sub Cam Gear is exactly in line with the hole on chassis, at the same time, the small hole (located just outside of large hole) on Sub Cam Gear is exactly in line with the hole on Ring Gear.
3. Install the Detent Arm.

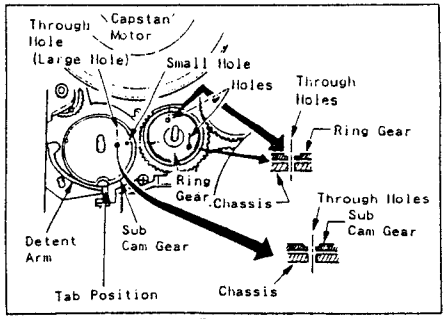


Fig. A3

13-2. ALIGNMENT PROCEDURES OF MAIN CAM GEAR AND PRESSURE REDUCTION GEAR

1. Install the Pressure Reduction Gear from top side of chassis.
2. Install the Main Cam Gear onto the Sub Cam Gear so that the small hole on Main Cam Gear is exactly in line with the small hole on Pressure Reduction Gear. And the large hole on Main Cam Gear is in line with the large hole on Sub Cam Gear as shown in Fig. A4.

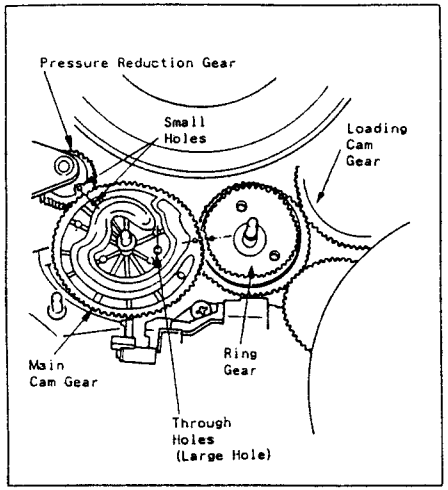


Fig. A4

13-3. ALIGNMENT PROCEDURES OF MAIN CAM GEAR, RETAINER GEAR ASS'Y AND LOADING CAM GEAR

1. Install the Retainer Gear ASS'Y so that the Holes on the Retainer Gear ASS'Y aligns with Holes on the Ring Gear and Holes on the Chassis. To facilitate aligning the three holes use a small hex. wrench or a metal pin.
2. Install the Loading Cam Gear so that the Hole on the Loading Cam Gear aligns with the Hole on the Retainer Gear ASS'Y.
3. Confirm that the Hole on the Main Cam Gear aligns with the Hole on the Retainer Gear ASS'Y.

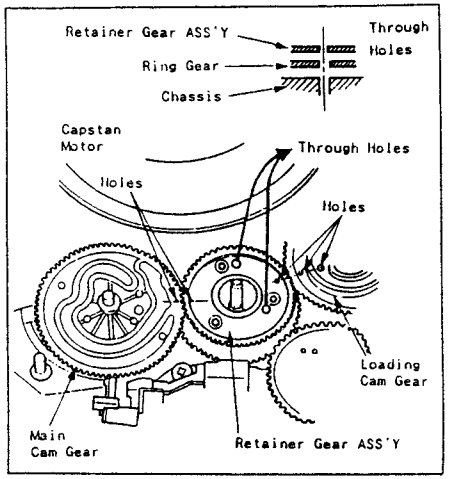


Fig. A5

13-4. ALIGNMENT PROCEDURES OF SUN GEAR AND CLUTCH DISK ASS'Y

1. Install the Sun Gear so that the Holes on the Sun Gear aligns with the through Holes on the Retainer Gear ASS'Y, Ring Gear and chassis. To facilitate aligning the four holes use a small hex. wrench or a metal pin.
2. Install the Clutch Disk ASS'Y so that the small Hole on the Clutch Disk ASS'Y aligns with Hole on the Sun Gear.

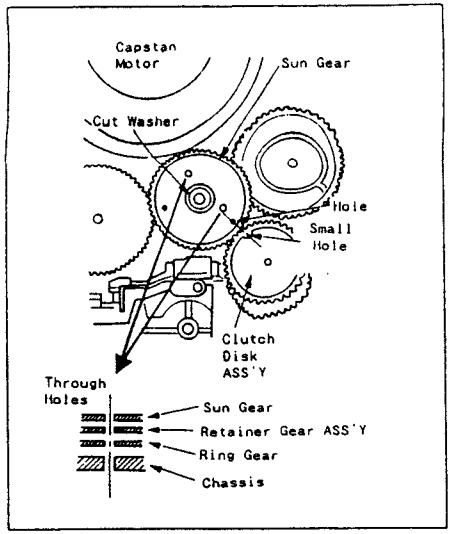


Fig. A6

13-5. ALIGNMENT PROCEDURES OF LOADING ARM-T UNIT, LOADING ARM-S UNIT AND SECTOR GEAR UNIT

1. Set the P2 and P3 posts to unloading position, then install the Loading Arm-T Unit and S Unit so that the hole on Loading Arm-T Unit is exactly in line with the hole on Loading Arm-S Unit.
2. Install the Sector Gear Unit so that the hole on Sector Gear Unit is exactly in line with the projection mark on Loading Arm-T Unit.
3. Install the Span Limiter using Retaining Rings and Screw, Fig. A7.

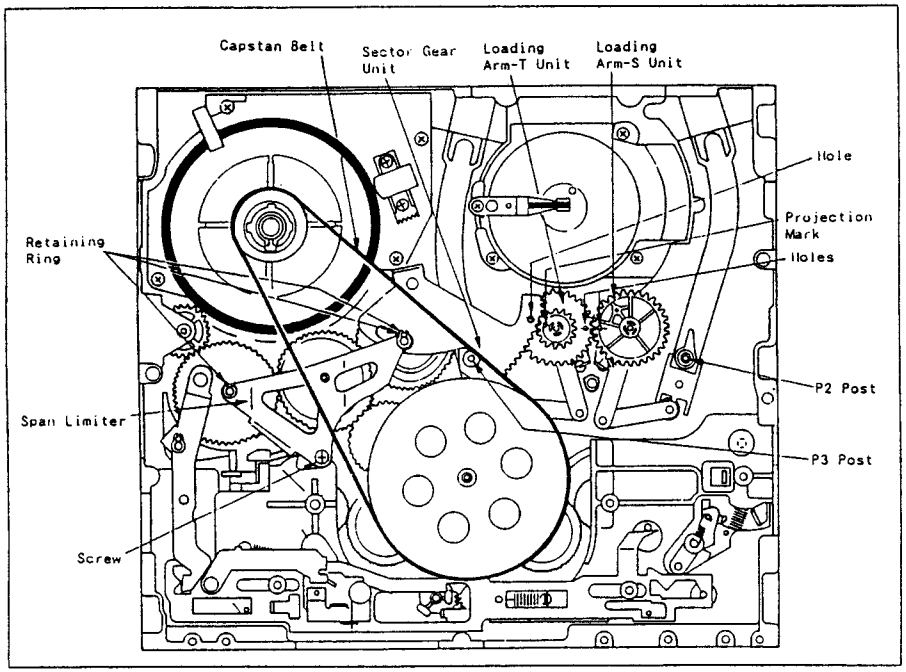


Fig. A7

13-6. ALIGNMENT PROCEDURES OF LINK GEAR

Note:
Before this alignment, Sub Cam Gear position (and positions of all bottom side gears) must be in their correct alignment position for Half Load Stop (FF/REW) Mode as previously described. Push down to seat the Sector Gear Unit, refer to 13-5. Install the Link Gear so that the Line on the Link Gear is parallel to the side line of Mechanical Chassis, as shown in Fig. A8.

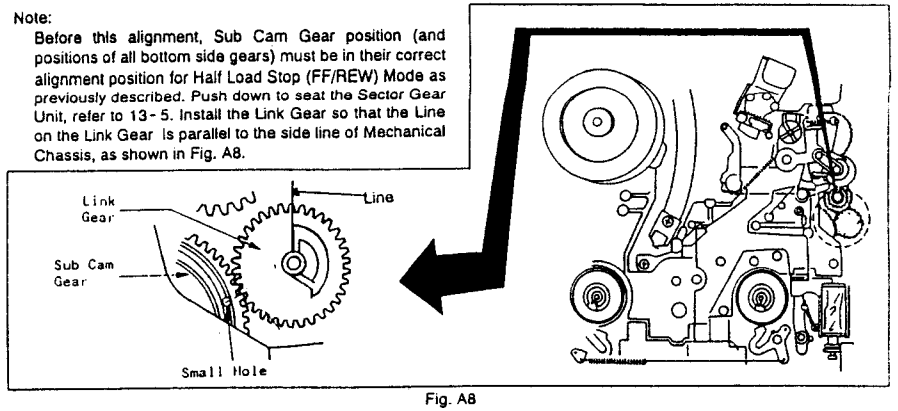


Fig. A8

13-7. ALIGNMENT PROCEDURES OF P5 SECTOR GEAR AND P5 ARM UNIT

1. Install the P5 Sector Gear so that the hole of P5 Sector Gear aligns with the last tooth on the P5 Arm Unit, refer to Fig. A9.

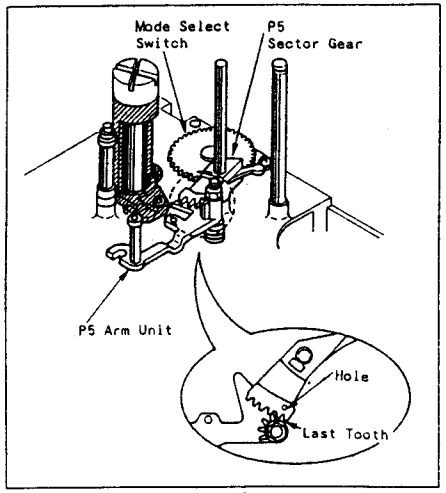


Fig. A9

13-8. ALIGNMENT PROCEDURES OF PRESSURE ROLLER LIFT CAM, MODE SELECT SWITCH AND PRESSURE REDUCTION GEAR

1. Push P5 Arm Unit clockwise until it stops and hold it in this position. Then install the Pressure Roller Lift Cam so that Hole on the Mode Select Switch aligns with Hole on the Pressure Roller Lift Cam and Projection on Pressure Roller Lift Cam aligns with Small Indentation on Pressure Reduction Gear when pushing the P5 Arm Unit completely as indicated by the arrow.

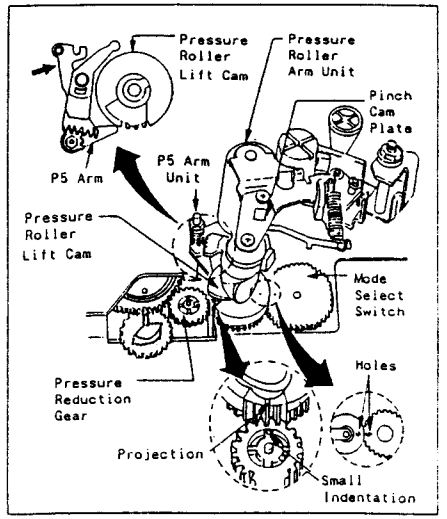


Fig. A10

14. DISASSEMBLY/ASSEMBLY AND ADJUSTMENT OF CASSETTE UP UNIT

STEP /LOC. No.	START - ING No.	PART		REMOVAL Fig. No.	REMOVAL * UNHOOK/UNLOCK /RELEASE	INSTALLATION # ADJUSTMENT # CONDITION
①	1	SUB FRAME UNIT	R	DM1	2(S-1)	(+) See. Adjustment of Cassette Up Unit Item 15.
②	1	INTERMEDIATE GEAR	R	DM1	.....	
③	1	WIPER ARM	R	DM1	.....	
④	1	GEAR PULLEY	R	DM1	(C-1), Loading Belt	
⑤	5	LOADING MOTOR UNIT	R	DM1	2(S-2)	.....
⑥	6	PANEL OPENER	R	DM1	(C-2)	.....
⑦	7	ANGLE	T	DM2	2(S-3)	.....
⑧	8	SIDE FRAME R UNIT	T	DM2	2(S-4)	.....
⑨	8	SUB HOLDER ASS'Y	T	DM2	.....	See. Adjustment of Cassette Up Unit Item 15.
⑩	8	FRONT FRAME UNIT	T	DM2	(S-5), (C-3)	.....
⑪	11	SIDE FRAME L UNIT	T	DM2	(S-6)	.....

List of Abbreviations:
R = Right, L = Left ; 3 (L-1) = 3 Locking Clips (L-1)
(+) : Refer to Exploded Views for Lubrication information.

(Right Side)

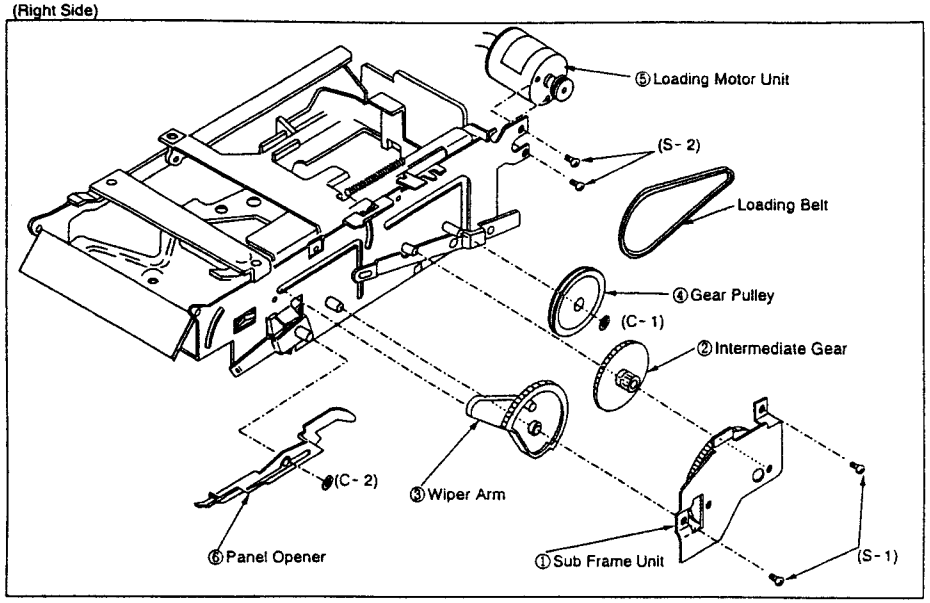


Fig. DA1

(Top Side)

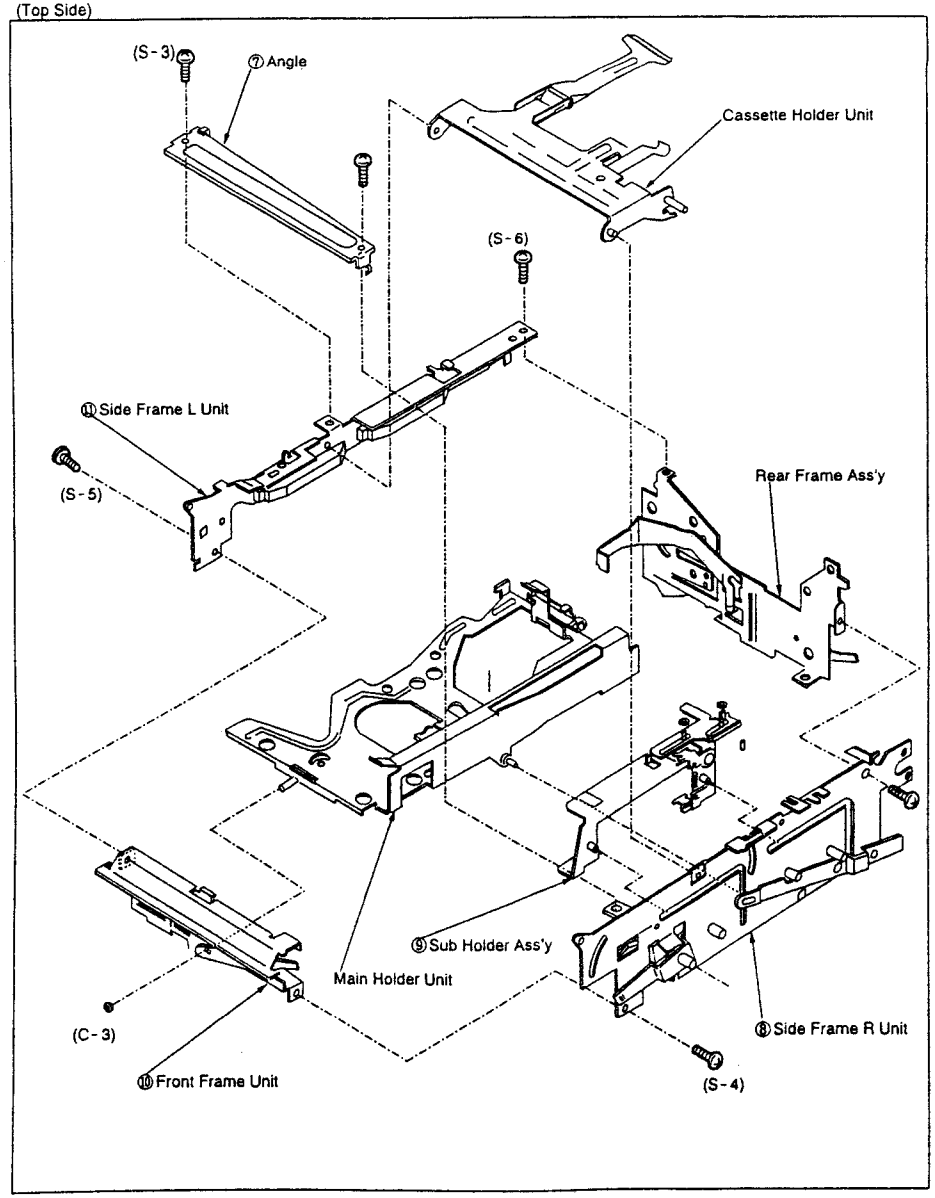


Fig. DA2

15. ADJUSTMENT OF CASSETTE DOWN UNIT

When reinstalling the Cassette Up Unit, mechanical adjustment (alignment) should be performed for proper operation as follows. And then, before reinstalling the Cassette Up Unit, ensure the Cassette Up Unit is in Eject Position and confirm the Adjustment of Item 15-1 and 15-2.

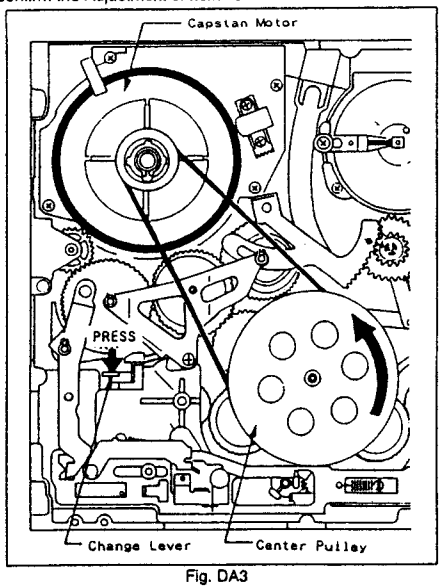


Fig. DA3

1. Press the Change Lever in the direction indicated by arrow as shown in Fig.DA3 (to release the lock).
2. Turn the Center Pulley counterclockwise until the mechanism is placed fully into the Eject position and maintain this position.
3. Reinstall the Cassette Up Unit with 4 Red Screws. When installing the Cassette Up Unit, confirm that the one of SW of the Photo Transistor is switched on by the Link Gear. For details, refer to Fig. D7 in page 16.

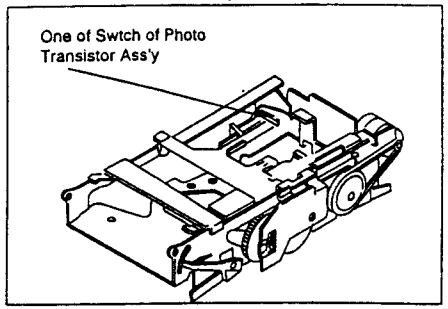


Fig. DA5

15 – 1. ADJUSTMENT OF CASSETTE DOWN SWITCH

1. Place the Unit in the cassette down condition.
2. Loosen Screw (A) and set the Cassette Down Switch to the completely OFF (Open) position.
3. Adjust the Cassette Down Switch as little as possible and still have it in the OFF Position when the Wiper is pushed in the direction indicated by the arrow so that surface ⓑ of the Wiper Arm is parallel to slot ⓒ.

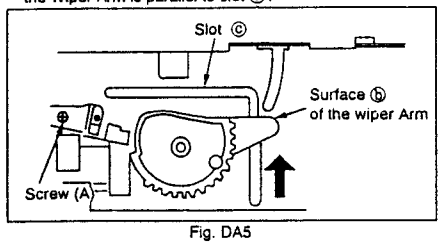


Fig. DA5

Note :
When adjusting, excessive clearance of the Cassette Down Switch must be avoided.

4. Tighten Screw (A) carefully without moving the switch.
5. Confirm that the Cassette Down position and OFF in Cassette Up Position.

15 – 2. ADJUSTMENT OF CAM GEAR

1. Before installing the Cam Gear Unit, align the hole on the Cam Gear with the hole on the plate.
2. Place the Unit in the Cassette Up Condition.
3. Then install the Cam Gear Unit to the cassette Up Unit with 2 Screws (A) as shown in Fig. DA5.

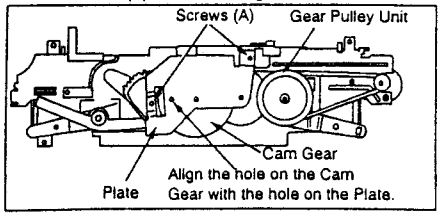


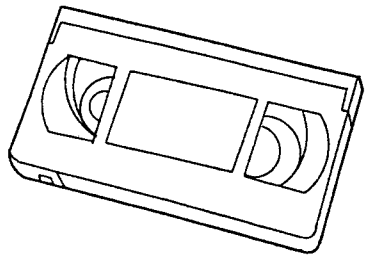
Fig. DA6

C. Elektrischer Abgleich
C. Electrical Adjustment Procedure

1. TEST EQUIPMENT

To perform the electrical adjustments completely, the following equipment is required.

1. Dual-Trace Oscilloscope
   Voltage Range : 0.001-50V/Div.
   Frequency Range : DC-50MHz
   Probes : 10:1, 1:1
2. Color TV Receiver or Monitor
3. Plastic Tip Driver and Non-Metal Driver
4. Isolation Transformer (Variable)
5. PAL VHS Alignment Tape (8 627 000 540)



	PROGRAM		TIME
	Video	Audio	
1	Mono Scope	Linear:6kHz	10 Min
2	Color Bars	Linear& FM:400Hz 8kHz 15kHz	5 Min

Fig. E1

2. HOW TO READ THE ADJUSTMENT PROCEDURES

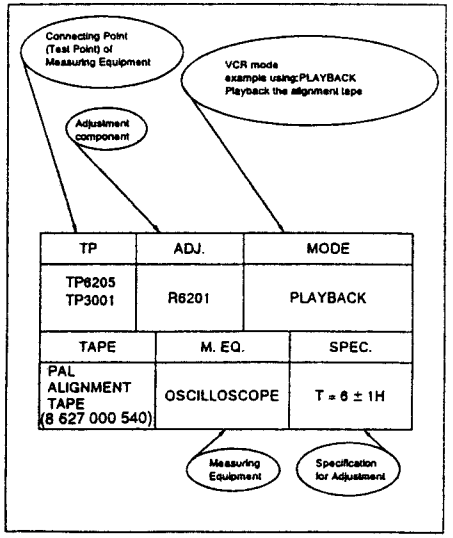
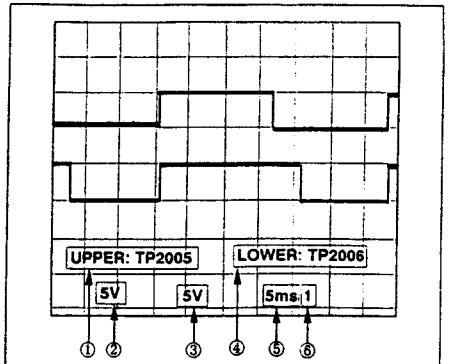
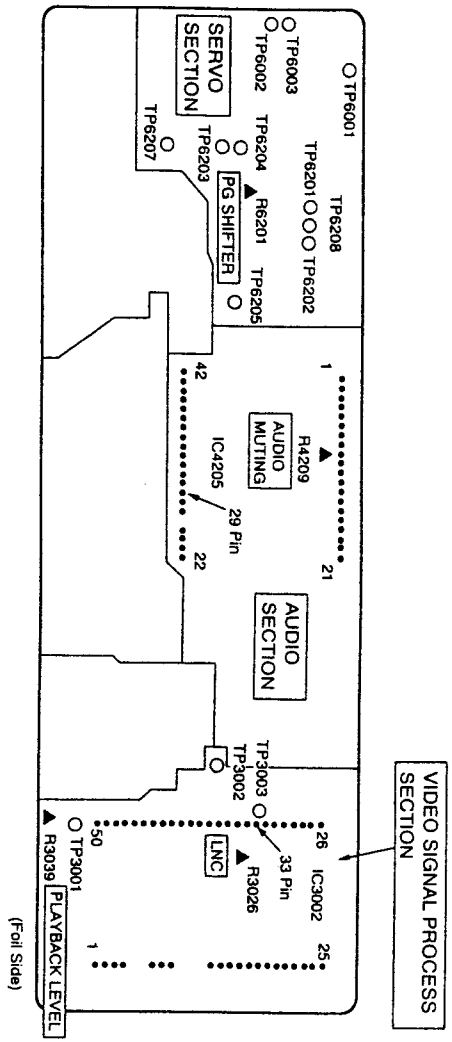


Fig. E2



1. Connecting Point
2. Volts/DIV
3. Volts/DIV
4. Connecting Point
5. Time/DIV
6. Trigger Channel of the Scope
   1 : UPPER
   2 : LOWER

Fig. E3



D. Lage der Test- und Abgleichpunkte
D. Location of Test and Adjustment points

Caution: Use an Isolation Transformer (Variable)

Because a Hot Chassis Ground is present in the Power Supply Circuit, an Isolation Transformer must be used. Also, in order to have the ability to increase the input voltage slowly, when troubleshooting this type Power Supply Circuit, a variable isolation transformer is required.

3. ADJUSTMENT PROCEDURES

These adjustment procedures consist of the following sections.

1. Servo Section
2. Audio Section
3. Luminance and Chrominance Section

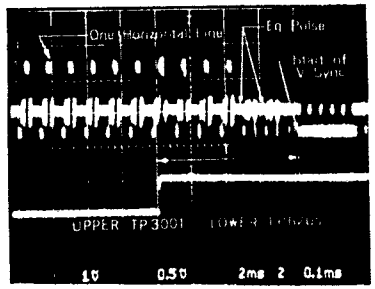


Fig. E4

3-1. SERVO SECTION

3-1-1. HEAD SWITCHING POSITION ADJUSTMENT (PG SHIFTER)

Purpose:
Determine the Head Switching Point during Playback.

Symptom of Misadjustment:
May cause Head Switching Noise and/or Vertical Jitter in the picture.

TP	ADJ.	MODE
TP3001 TP6205	R6201	PLAYBACK

TAPE	M. EQ.	SPEC.
PAL ALIGNMENT TAPE (8 627 000 540)	OSCILLOSCOPE	T=6 ± 1H (0.38 ± 0.06msec)

Note:
TP3001 : Video Signal Process Section on the Main C.B.A.
TP6205, R6201 : Servo Section on the Main C.B.A.

3-2. AUDIO SECTION

3-2-1. Hi-Fi AUDIO SECTION

3-2-1-1. AUDIO MUTING ADJUSTMENT

Purpose :
To eliminate the Hi-Fi Audio function when the FM Carrier level is inadequate.

Symptom of Misadjustment :
Significant noise will be heard in the Audio, or the Unit will not go into the Hi-Fi Audio mode.

(SETUP)
Eject the tape and reinsert it again, this will access the Neutral Tracking position.

TP	ADJ.	MODE
29 Pin of IC4205	R4209	PLAYBACK

TAPE	M. EQ.	SPEC.
PAL ALIGNMENT TAPE (8 627 000 540)	OSCILLOSCOPE	

Note :
29 Pin of IC4205, R4209 : Audio Section on the Main C.B.A.

1. Insert a PAL ALIGNMENT Tape and playback the Hi-Fi recording portion.
2. Adjust the Tracking Control on the unit so that the amplitude of the signal at Pin 29 of IC4205 is reduced to 1/3.
3. First adjust AUDIO MUTING (R4209) until the Hi-Fi indication turns OFF.
4. Then slowly adjust AUDIO MUTING (R4209) to the point where the Hi-Fi indication just turns ON.
5. Confirm that the audio on CH-L and CH-R does not contain any abnormal sounds.

3-3. LUMINANCE CHROMINANCE SECTION

3-3-1. LOW FREQUENCY NOISE CANCELLER ADJUSTMENT(LINE NOISE CANCELLER)

Purpose:
Improve the overall S/N Ratio especially in the Low Frequency Component.

Symptom of Misadjustment:
The S/N Ratio will be lower.

TP	ADJ.	MODE
TP3003 (33 Pin of IC3002)	R3026	PLAYBACK
TAPE	M. EQ.	SPEC.
PAL ALIGNMENT TAPE (8 627 000 540)	OSCILLOSCOPE	Refer to Fig. E5-1 and Fig. E5-2.

Note :
Use TP6205 as a Trigger, located on Servo Section on the Main C.B.A.
TP3003, R3026 : Video Signal Process Section on the Main C.B.A.

Adjust the LINE NOISE CANCELLER(R3026) so that upper and lower envelope from the center line is to be symmetrical.

(Misadjustment)

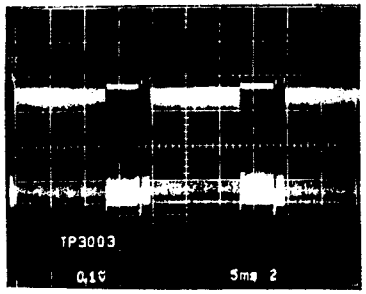


Fig. E5-1

(Correct Adjustment)

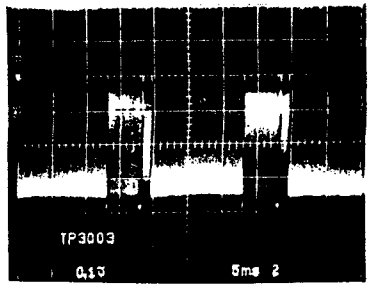


Fig. E5-2

3-3-2. PLAYBACK LEVEL ADJUSTMENT

Purpose :
To align the playback Level of the Video Signal with the Recording (E-E) Level.

Symptom of Misadjustment :
Playback interchangeability is inadequate.

TP	ADJ.	MODE
TP3001	R3039	PLAYBACK
TAPE	M. EQ.	SPEC.
PAL ALIGNMENT TAPE (8 627 000 540)	OSCILLOSCOPE	A = 2.0 ± 0.1Vp-p

Note :
TP3001, R3039 : Video Signal Process Section on the Main C.B.A.

Adjust R3039 so that the A Level at TP3001 is 2.0 ± 0.1Vp-p.

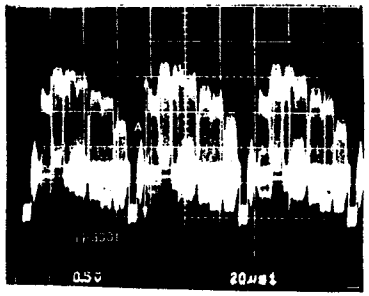
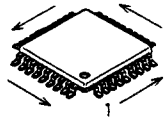


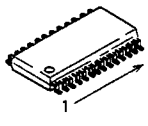
Fig. E6

Halbleiter-Anschlußpunkte
Semi Conductor Connection Points

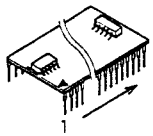
GENERAL C. B. A. / ASS'Y PARTS



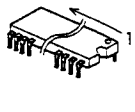
MN675201V1Y,
UPD75304GF-136



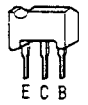
AN1358S, UPC358G2
LA7280M, AN3334S
MN3811S, M5280FP



VCRS0166, VCRS0165



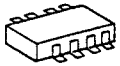
AN3826NK,
AN3316SB



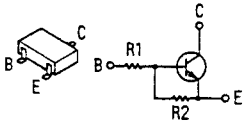
2SB644, 2SB1050
2SD636, 2SD1458,
2SC2021M, 2SD1330
2SB793, 2SB643,
2SB1050

2SD601, 2SB709,
2SB710, 2SC2412KS,
2SA1037KR, 2SA1037KS,
2SC2404, 2SD1483,
2SB710A

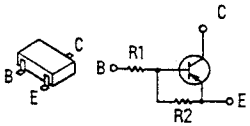
2SD874A
2SB766A
2SB956
2SD1119



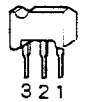
AN1393S



UN2210 (R1=47K, R2=OPEN)
DTC114EK (R1=10K, R2=10K)
UN2211 (R1=10, R2=10K)
UN2212 (R1=22K, R2=22K)
UN2213 (R1=47K, R2=47K)
UN2215 (R1=10K, R2=OPEN)
DTC124EK (R1=10K, R2=OPEN)
UN221L (R1=4. 7K, R2=4. 7K)

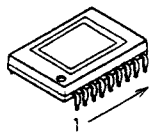


UN2111 (R=47K, R2=47K),
UN2115 (R=47K, R2=47K),
DTA114EK (R1=47K, R2=47K),
DTA114TK (R1=10K, R2=OPEN),
DTC143EK (R1=4. 7K, R2=4. 7K)

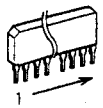


MN1280-R

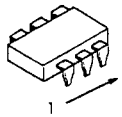
MAIN C. B. A.



AN3813K

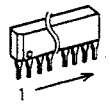


TA7291S

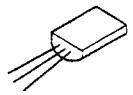


ON3401-R

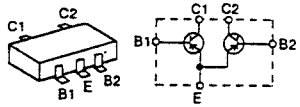
AN78L05M
UPC78L05T-E1



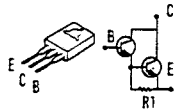
PUA3228



LA2950C2

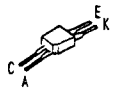


2SA1618
XN1501
FMW1



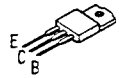
2SD947

MECHANISM CONNECTION ASS'Y



ON2170-RLF
ON2170-S

POWER SUPPLY ASS'Y



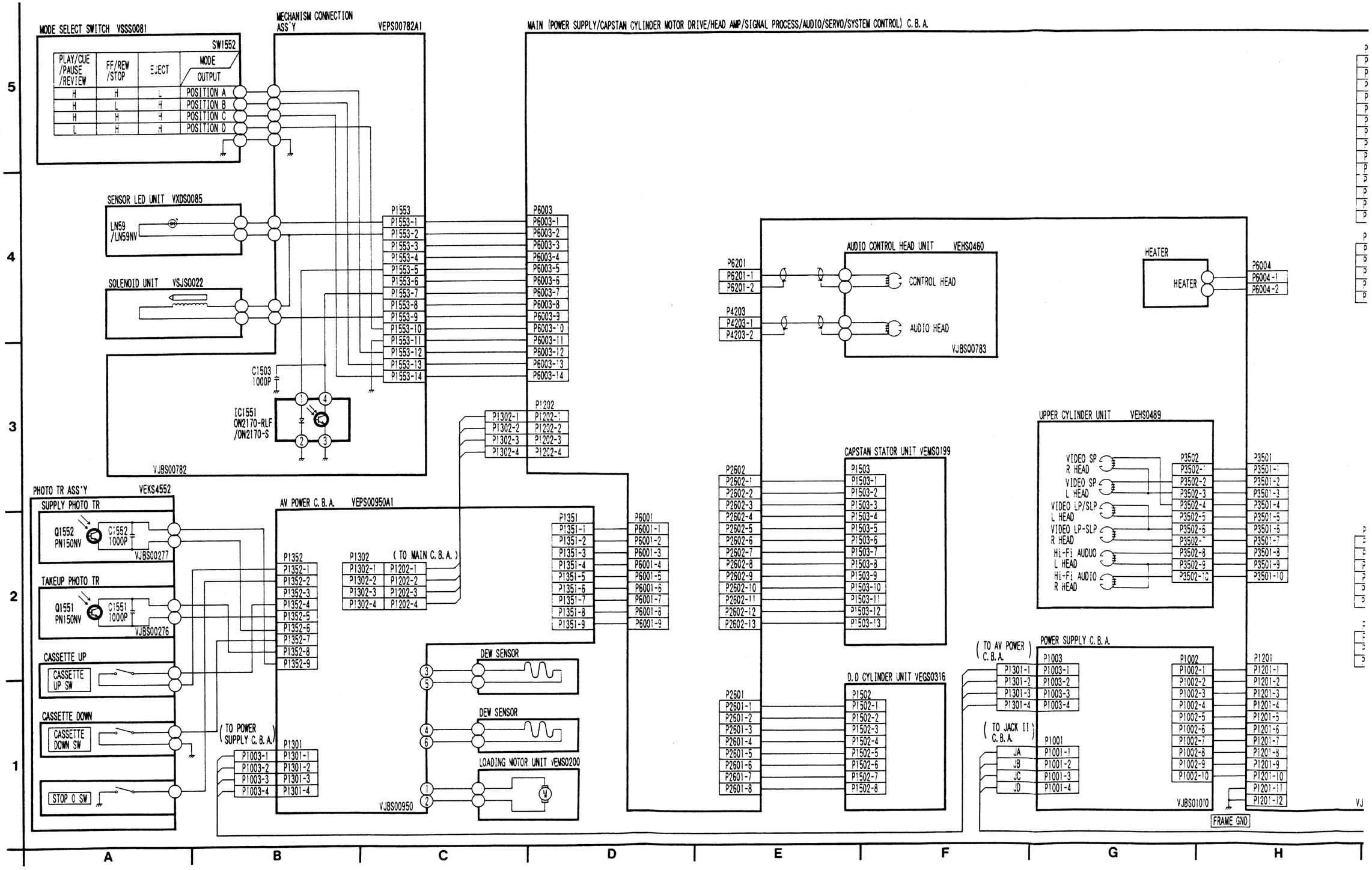
2SC3852,
2SB953A

HOW TO READ THE IDENTIFICATION MARK OF CHIP TRANSISTOR IN THIS UNIT.

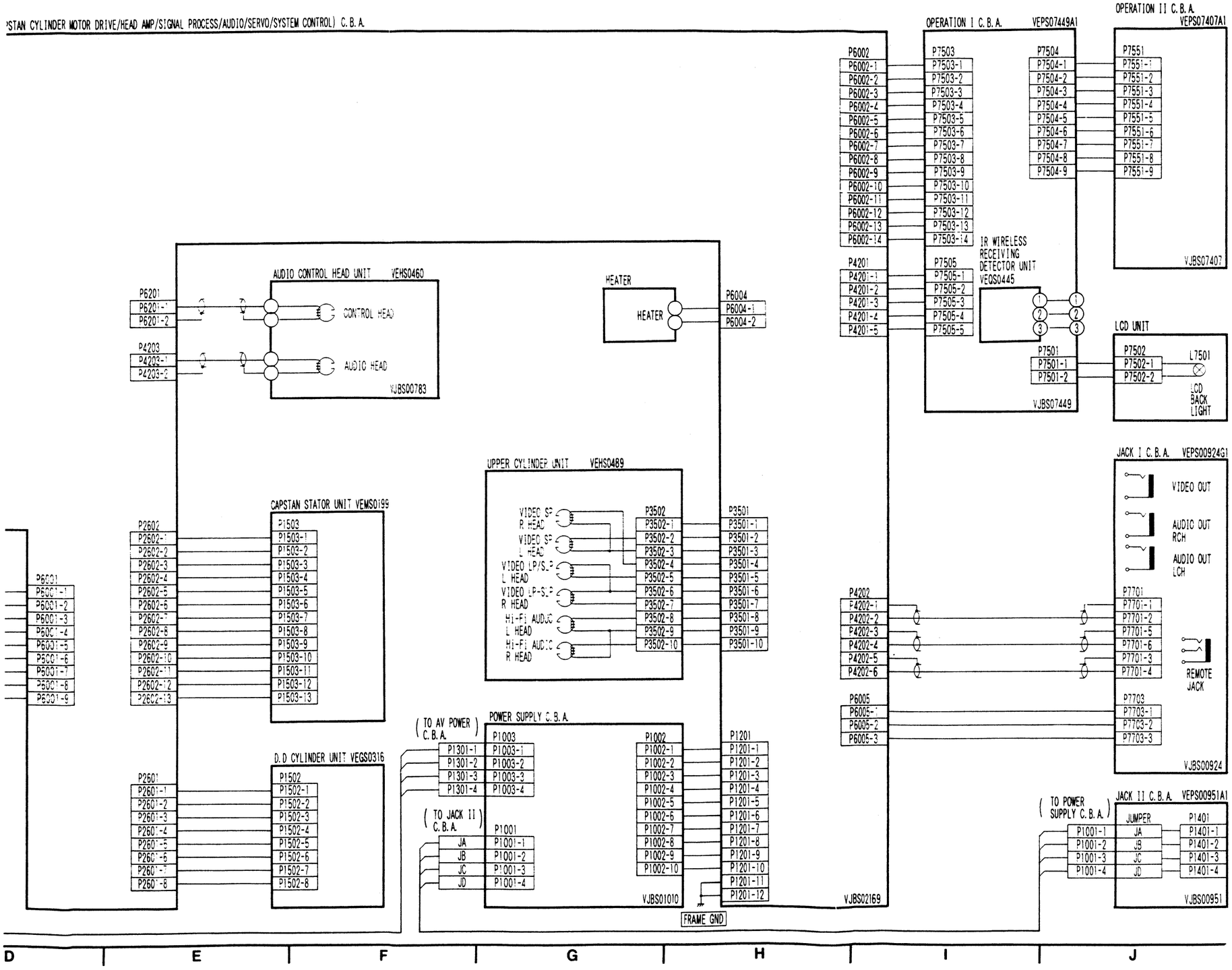
MARKING	PART NO.	MARKING	PART NO.
A	2SB709	04	DTC114TK
BR	2SC2412R	5R	XN1501
BS	2SC2412S	6A	UN2111
D	2SB710A	6E	UN2115
FR	2SA1037R	8A	UN2211
FS	2SA1037S	8B	UN2212
H	2SB956	8C	UN2213
I	2SB1073	8E	UN2215
SY	2SA1618	8Q	UN221L
T	2SD1119	14	DTA114EK
U	2SC2404	23	DTC143EK
W1	FMW1	24	DTC114EK
Y	2SD601	25	DTC124EK
Z	2SD874	94	DTA114TK

HOW TO READ THE IDENTIFICATION MARK OF CHIP DIODES IN THIS UNIT.

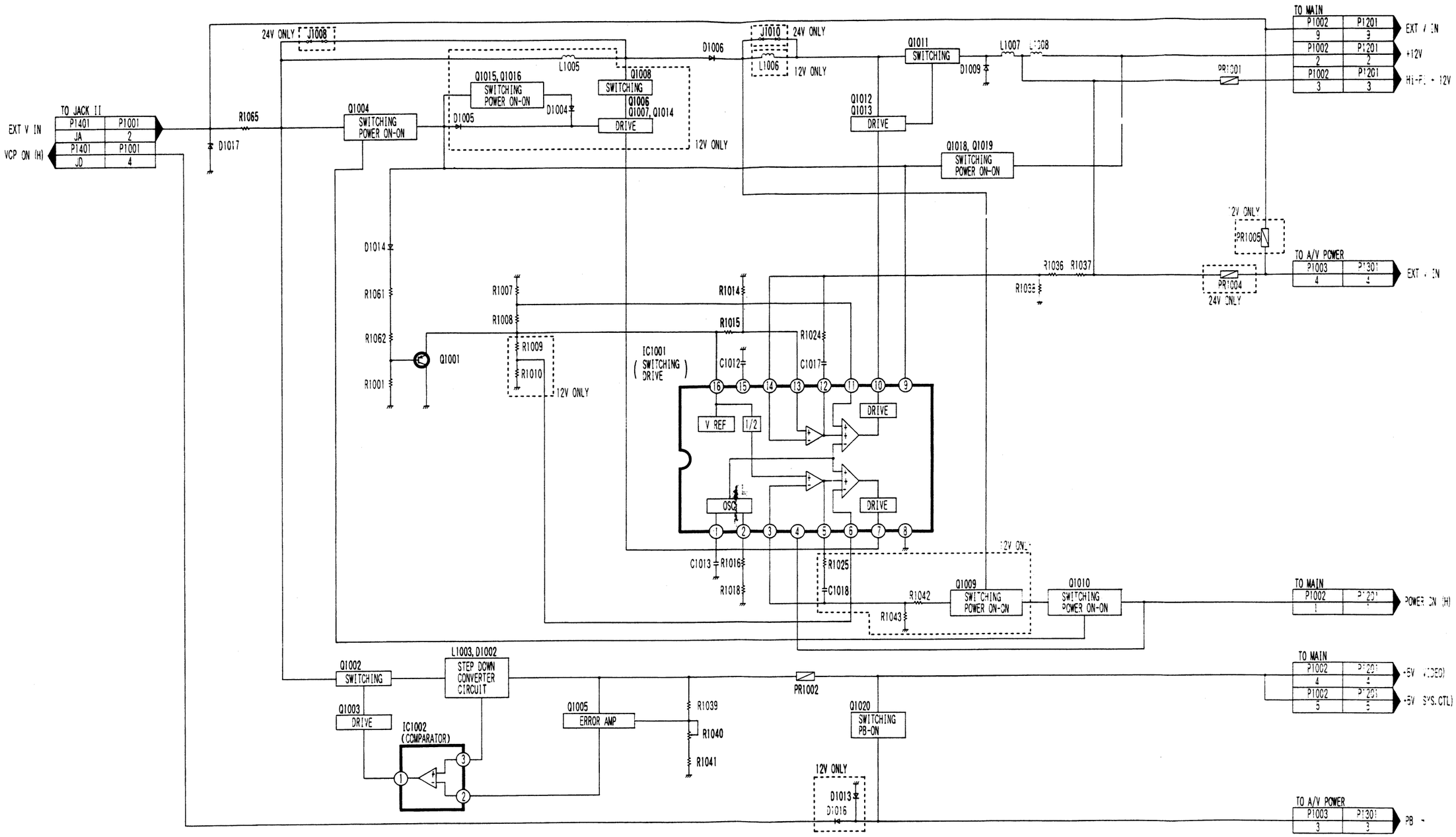
MARKING	PART NO.
MC	MA153
MH	MA151K
MA	MA151WK
1A	MA110
2A	MA728


MODE SELECT SWITCH VSSS0081
SW1552
PLAY/CUE /PAUSE /REVIEW
FF/REW /STOP
EJECT
MODE OUTPUT
H H L POSITION A
H L H POSITION B
H H H POSITION C
L H H POSITION D
MECHANISM CONNECTION ASS'Y VEPS00782A1
SENSOR LED UNIT VXDS0085
LN59 /LN59NV
SOLENOID UNIT VSJS0022
C1503 1000P
IC1551 ON2170-RLF /ON2170-S
VJBS00782
P1553
P1553-1
P1553-2
P1553-3
P1553-4
P1553-5
P1553-6
P1553-7
P1553-8
P1553-9
P1553-10
P1553-11
P1553-12
P1553-13
P1553-14
P6003
P6003-1
P6003-2
P6003-3
P6003-4
P6003-5
P6003-6
P6003-7
P6003-8
P6003-9
P6003-10
P6003-11
P6003-12
P6003-13
P6003-14
P1202
P1202-1
P1202-2
P1202-3
P1202-4
P1302-1
P1302-2
P1302-3
P1302-4
MAIN (POWER SUPPLY/CAPSTAN CYLINDER MOTOR DRIVE/HEAD AMP/SIGNAL PROCESS/AUDIO/SERVO/SYSTEM CONTROL) C.B.A.
AUDIO CONTROL HEAD UNIT VEHS0460
P6201
P6201-1
P6201-2
CONTROL HEAD
P4203
P4203-1
P4203-2
AUDIO HEAD
VJBS00783
HEATER
HEATER
P6004
P6004-1
P6004-2
UPPER CYLINDER UNIT VEHS0489
VIDEO SP R HEAD
VIDEO SP L HEAD
VIDEO LP/SLP L HEAD
VIDEO LP-SLP R HEAD
Hi-Fi AUDUO L HEAD
Hi-Fi AUDIO R HEAD
P3502
P3502-1
P3502-2
P3502-3
P3502-4
P3502-5
P3502-6
P3502-7
P3502-8
P3502-9
P3502-10
P3501
P3501-1
P3501-2
P3501-3
P3501-4
P3501-5
P3501-6
P3501-7
P3501-8
P3501-9
P3501-10
CAPSTAN STATOR UNIT VEMS0199
P2602
P2602-1
P2602-2
P2602-3
P2602-4
P2602-5
P2602-6
P2602-7
P2602-8
P2602-9
P2602-10
P2602-11
P2602-12
P2602-13
P1503
P1503-1
P1503-2
P1503-3
P1503-4
P1503-5
P1503-6
P1503-7
P1503-8
P1503-9
P1503-10
P1503-11
P1503-12
P1503-13
PHOTO TR ASS'Y VEKS4552
SUPPLY PHOTO TR
Q1552 PN150NV
C1552 1000P
VJBS00277
TAKEUP PHOTO TR
Q1551 PN150NV
C1551 1000P
VJBS00276
CASSETTE UP
CASSETTE UP SW
CASSETTE DOWN
CASSETTE DOWN SW
STOP O SW
AV POWER C.B.A. VEPS00950A1
P1352
P1352-1
P1352-2
P1352-3
P1352-4
P1352-5
P1352-6
P1352-7
P1352-8
P1352-9
P1302
(TO MAIN C.B.A.)
P1351
P1351-1
P1351-2
P1351-3
P1351-4
P1351-5
P1351-6
P1351-7
P1351-8
P1351-9
P6001
P6001-1
P6001-2
P6001-3
P6001-4
P6001-5
P6001-6
P6001-7
P6001-8
P6001-9
DEW SENSOR
DEW SENSOR
LOADING MOTOR UNIT VEMS0200
(TO POWER SUPPLY C.B.A.)
P1301
P1003-1
P1003-2
P1003-3
P1003-4
P1301-1
P1301-2
P1301-3
P1301-4
VJBS00950
D.D CYLINDER UNIT VEGS0316
P2601
P2601-1
P2601-2
P2601-3
P2601-4
P2601-5
P2601-6
P2601-7
P2601-8
P1502
P1502-1
P1502-2
P1502-3
P1502-4
P1502-5
P1502-6
P1502-7
P1502-8
(TO AV POWER C.B.A.)
P1301-1
P1301-2
P1301-3
P1301-4
(TO JACK II C.B.A.)
JA
JB
JC
JD
POWER SUPPLY C.B.A.
P1003
P1003-1
P1003-2
P1003-3
P1003-4
P1001
P1001-1
P1001-2
P1001-3
P1001-4
P1002
P1002-1
P1002-2
P1002-3
P1002-4
P1002-5
P1002-6
P1002-7
P1002-8
P1002-9
P1002-10
VJBS01010
P1201
P1201-1
P1201-2
P1201-3
P1201-4
P1201-5
P1201-6
P1201-7
P1201-8
P1201-9
P1201-10
P1201-11
P1201-12
FRAME GND
A
B
C
D
E
F
G
H
1
2
3
4
5

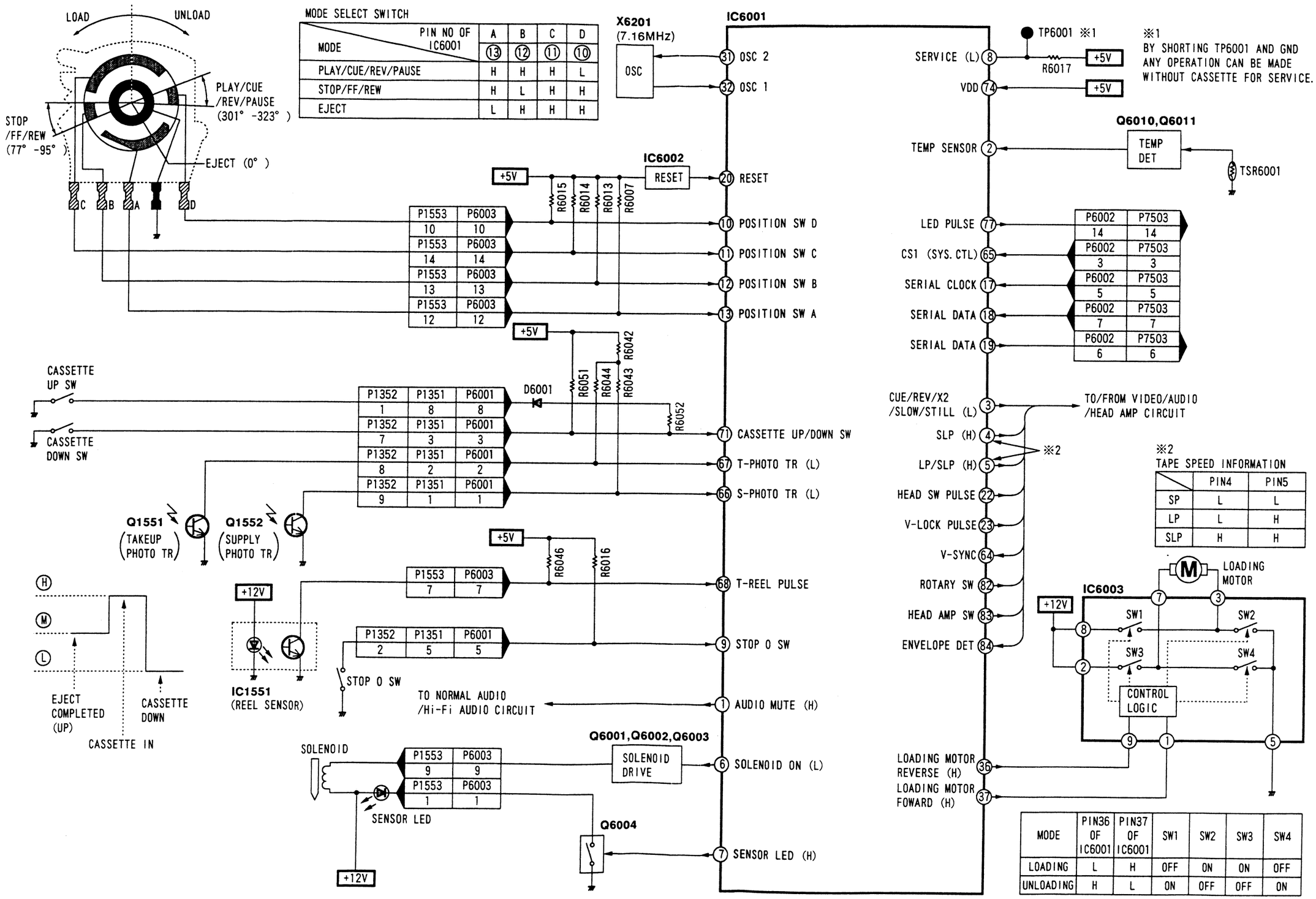
Verdrahtungsplan
Interconnection Schematic Diagram



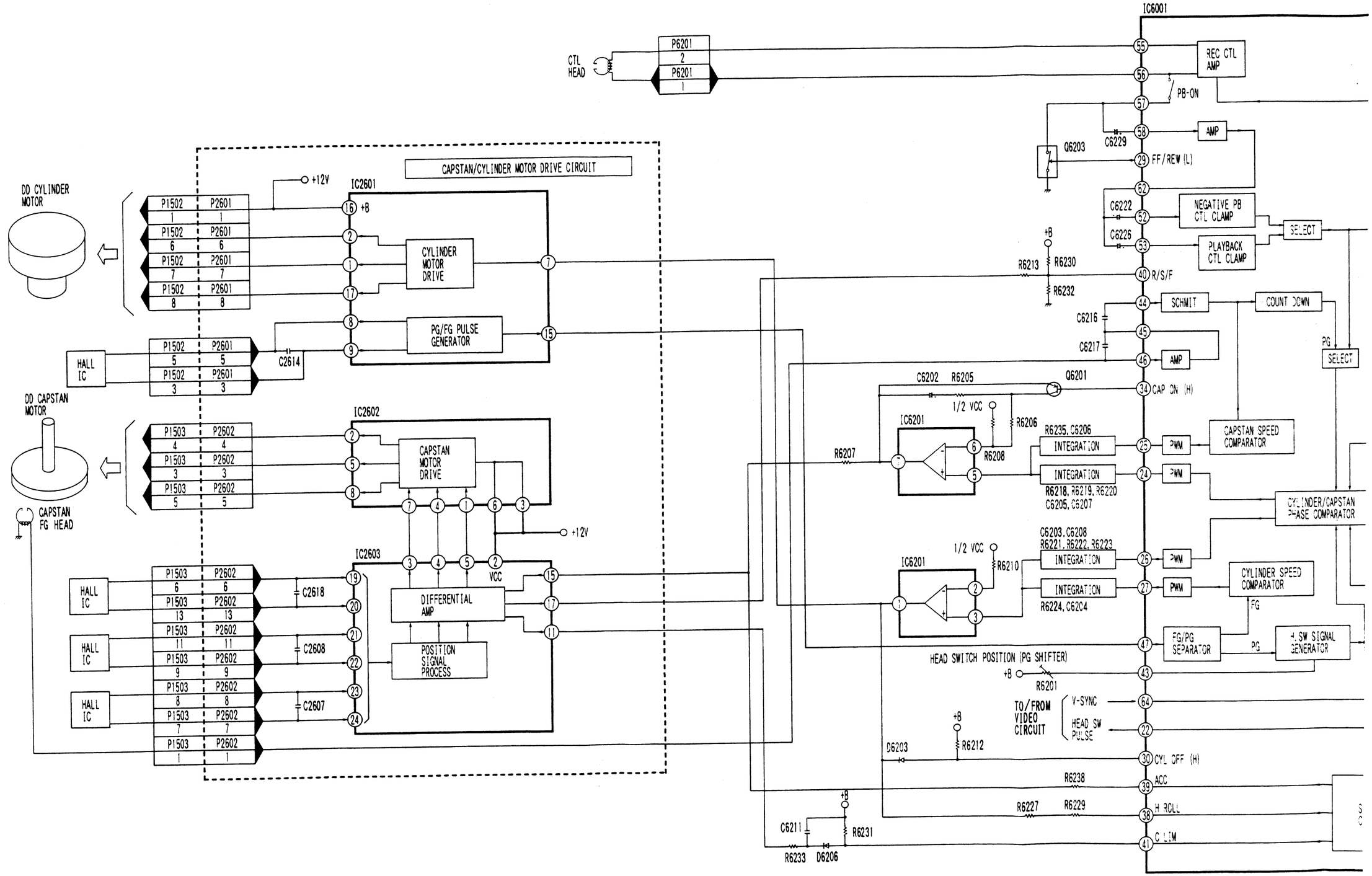
Blockschaltbild Power
Block Diagram Power



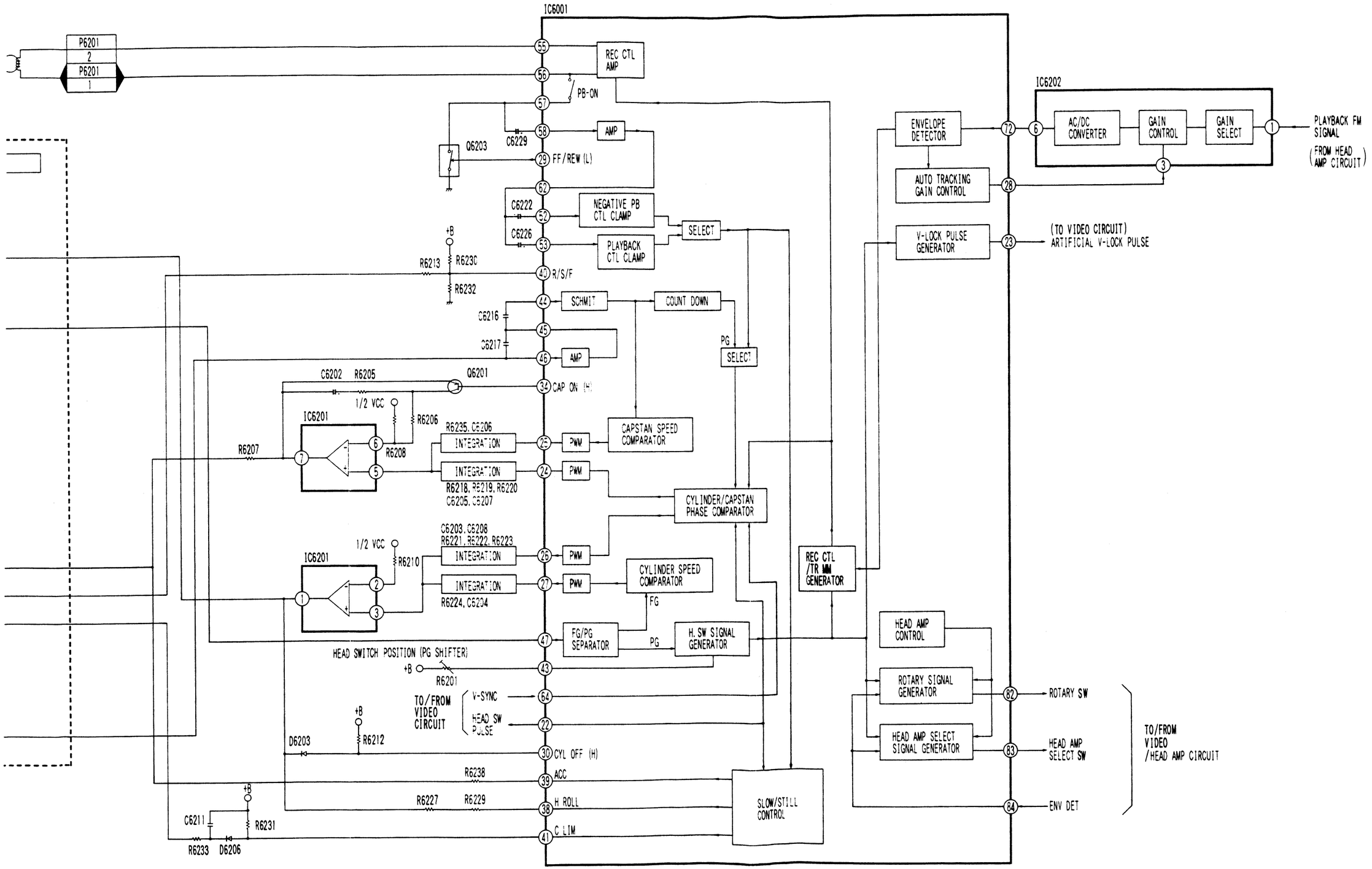
Blockschaltbild System Control
Block Diagram System Control



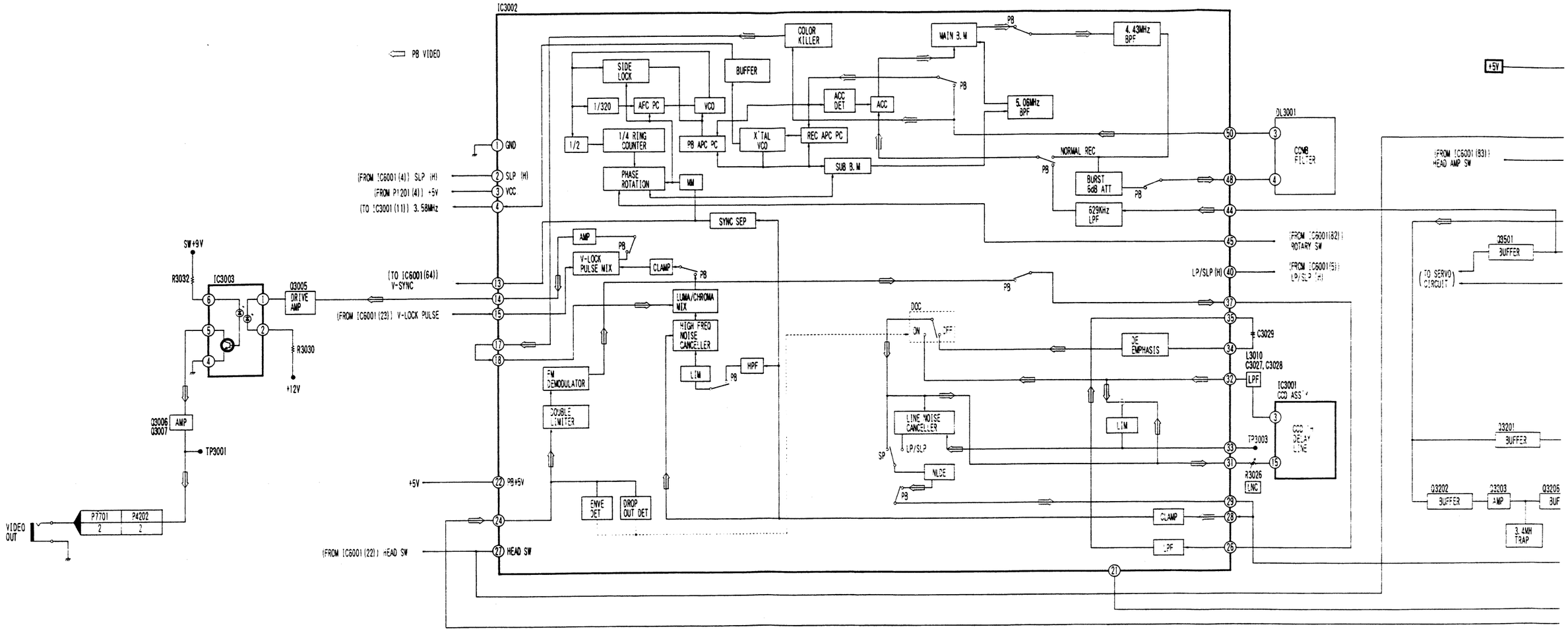
Blockschaltbild Servo
Block Diagram Servo



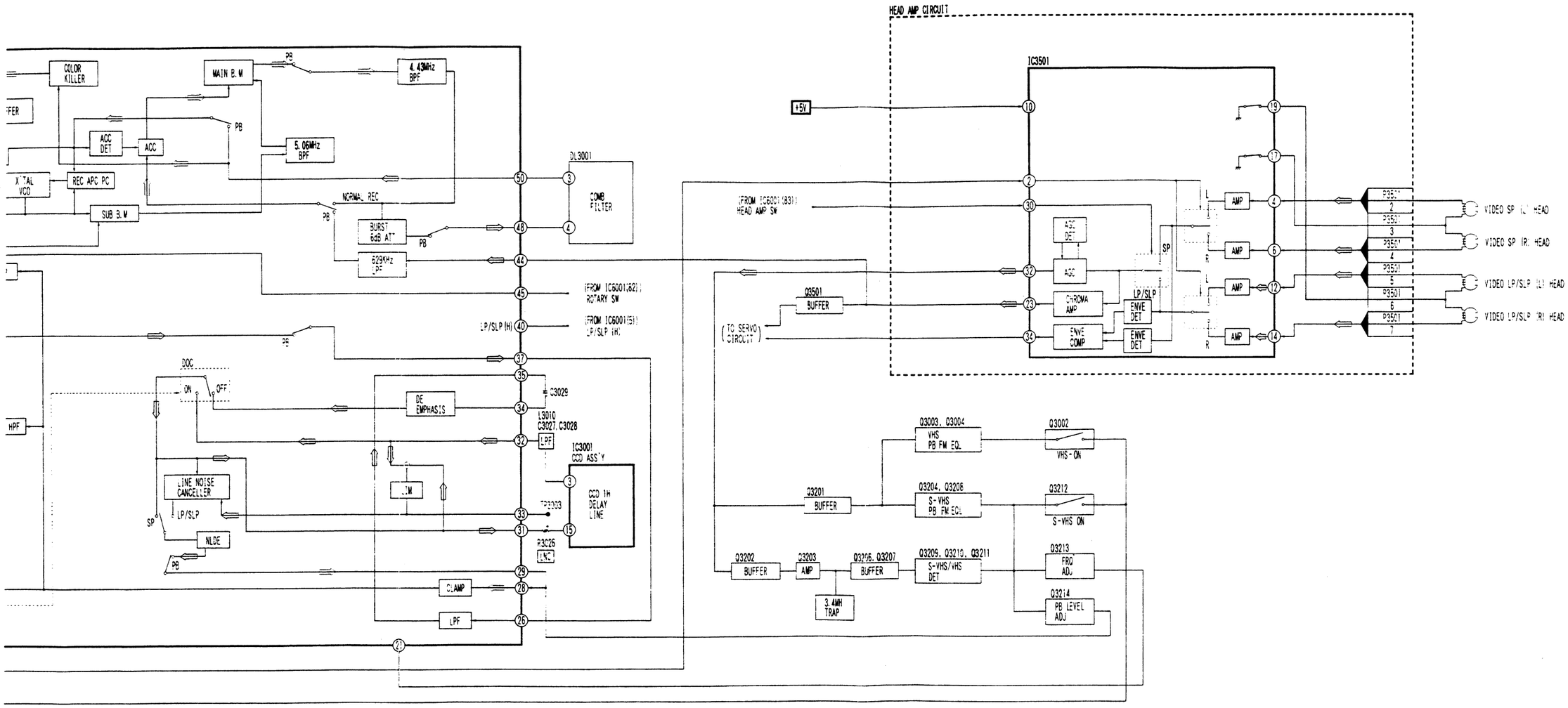
Blockschaltbild Servo
Block Diagram Servo



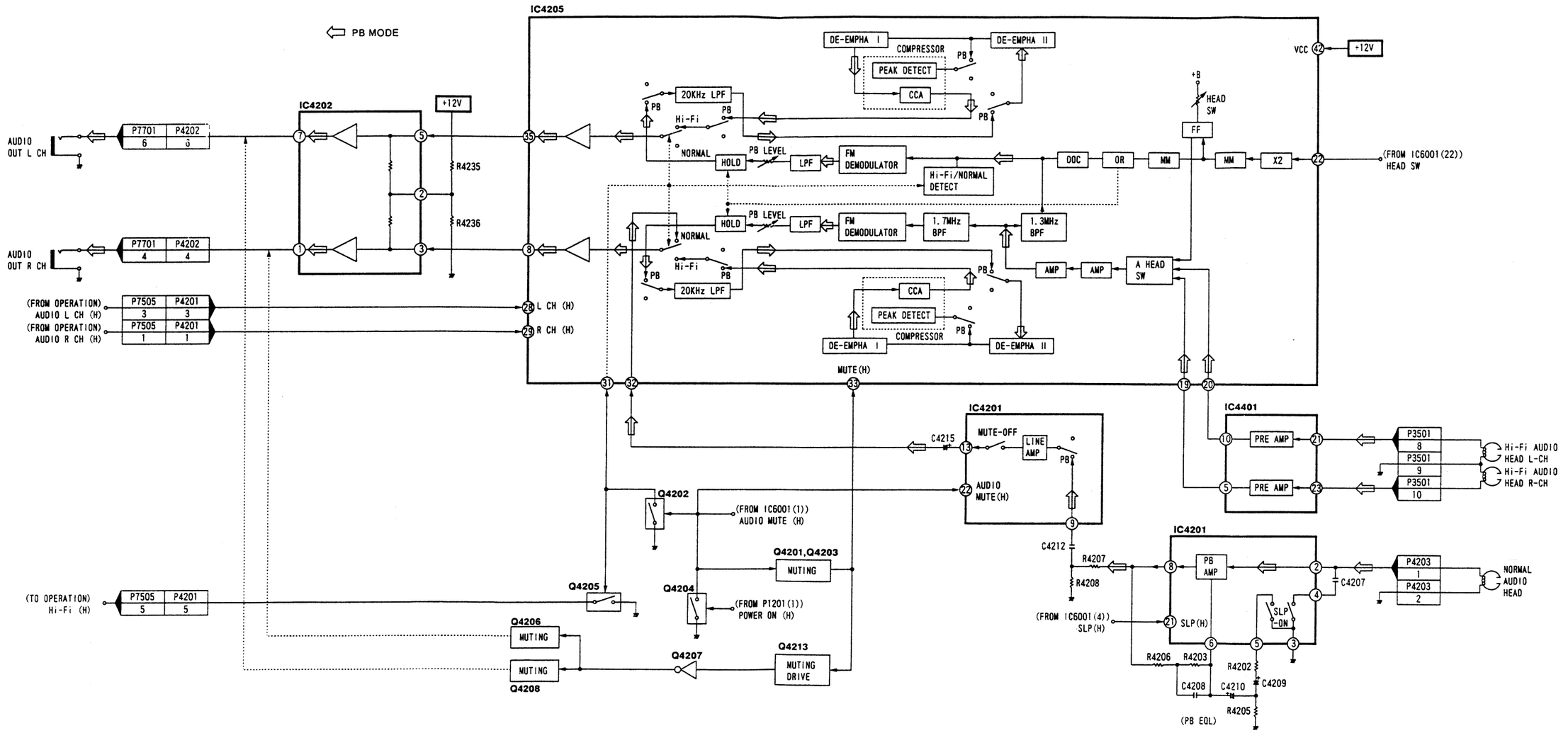
Blockschaltbild Video
Block Diagram Video



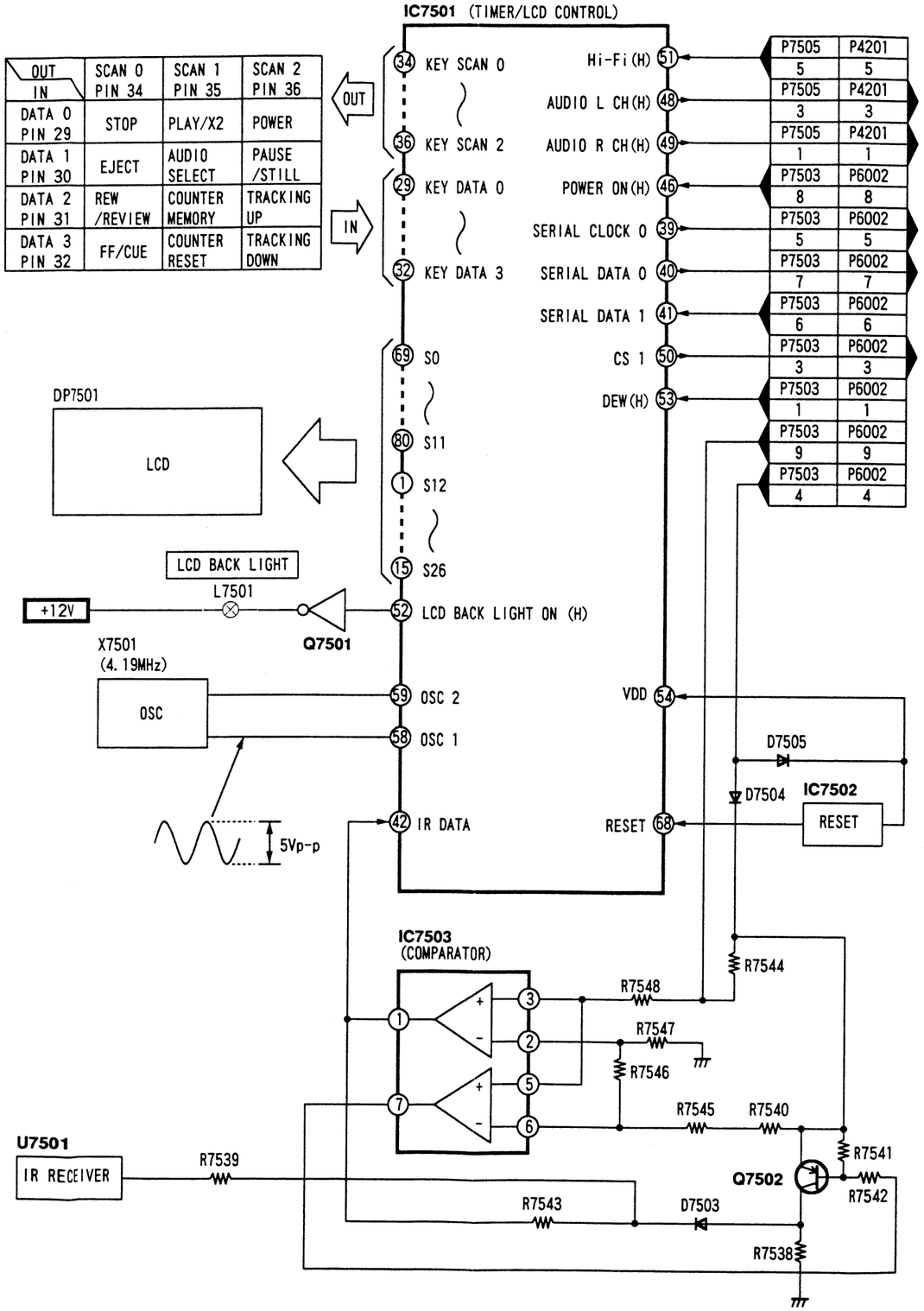
Blockschaltbild Video
Block Diagram Video



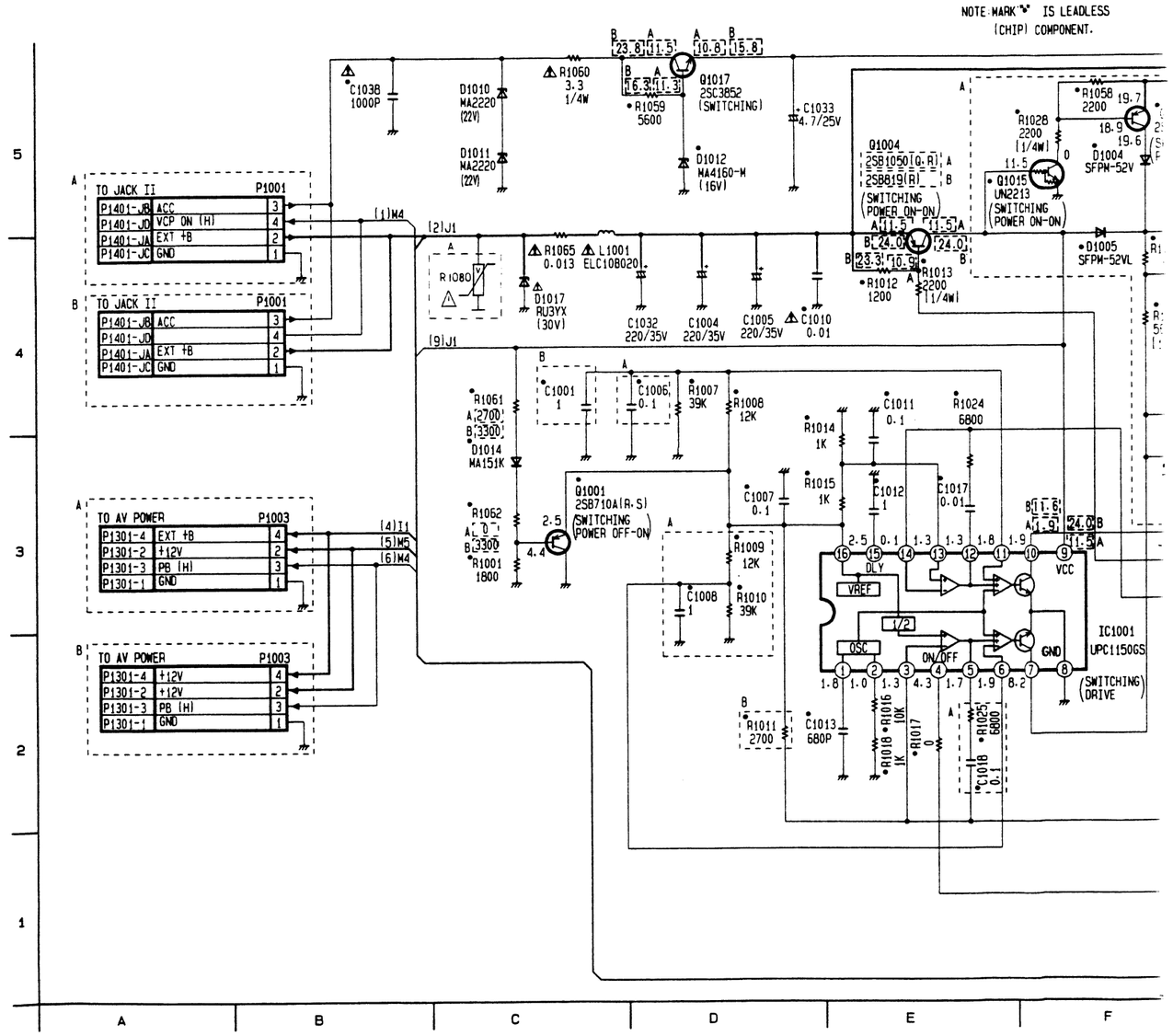
Blockschaltbild Audio
Block Diagram Audio



Blockschaltbild Bedienteil
Block Diagram Control unit

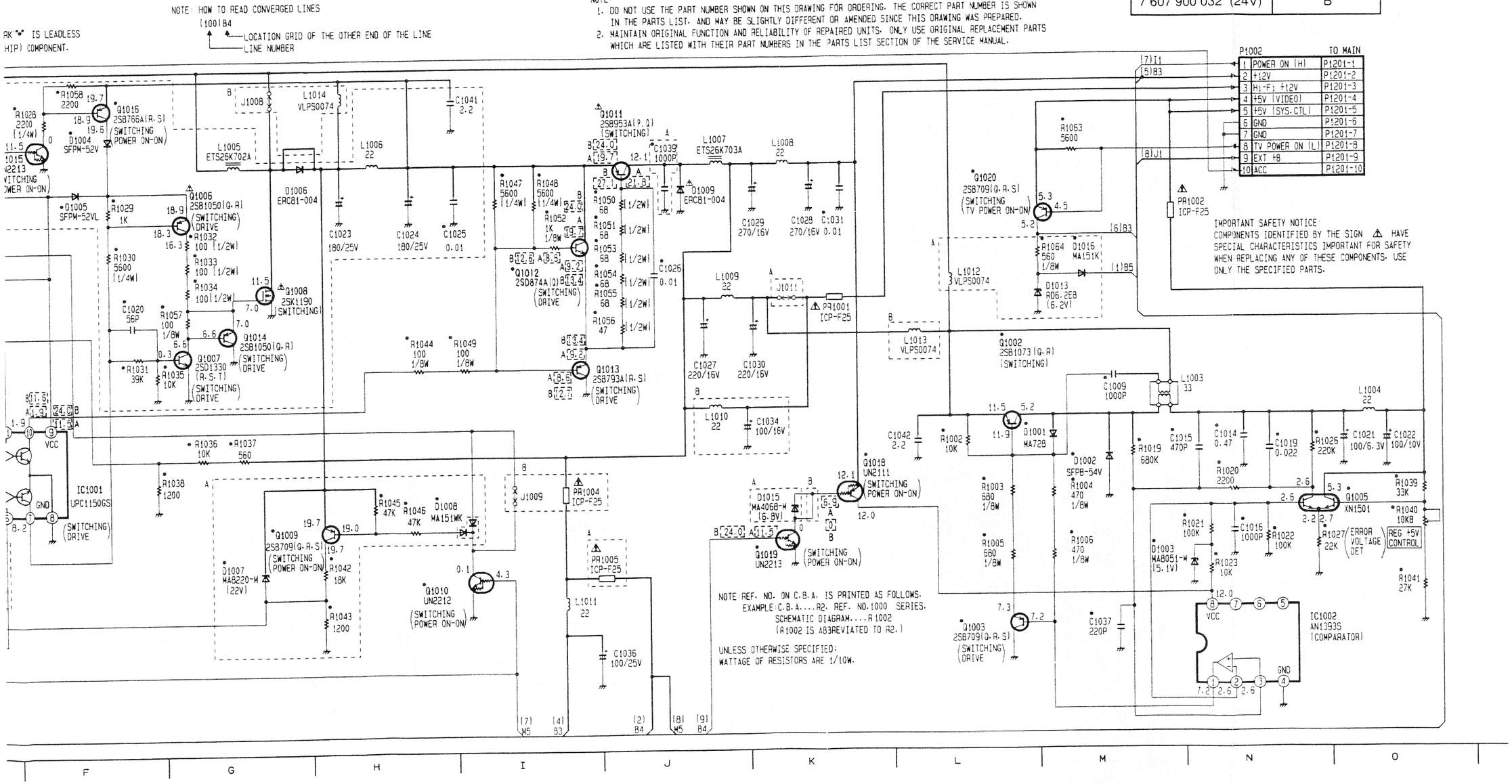


Schaltbild Netzteil
Power Supply Schematic Diagram



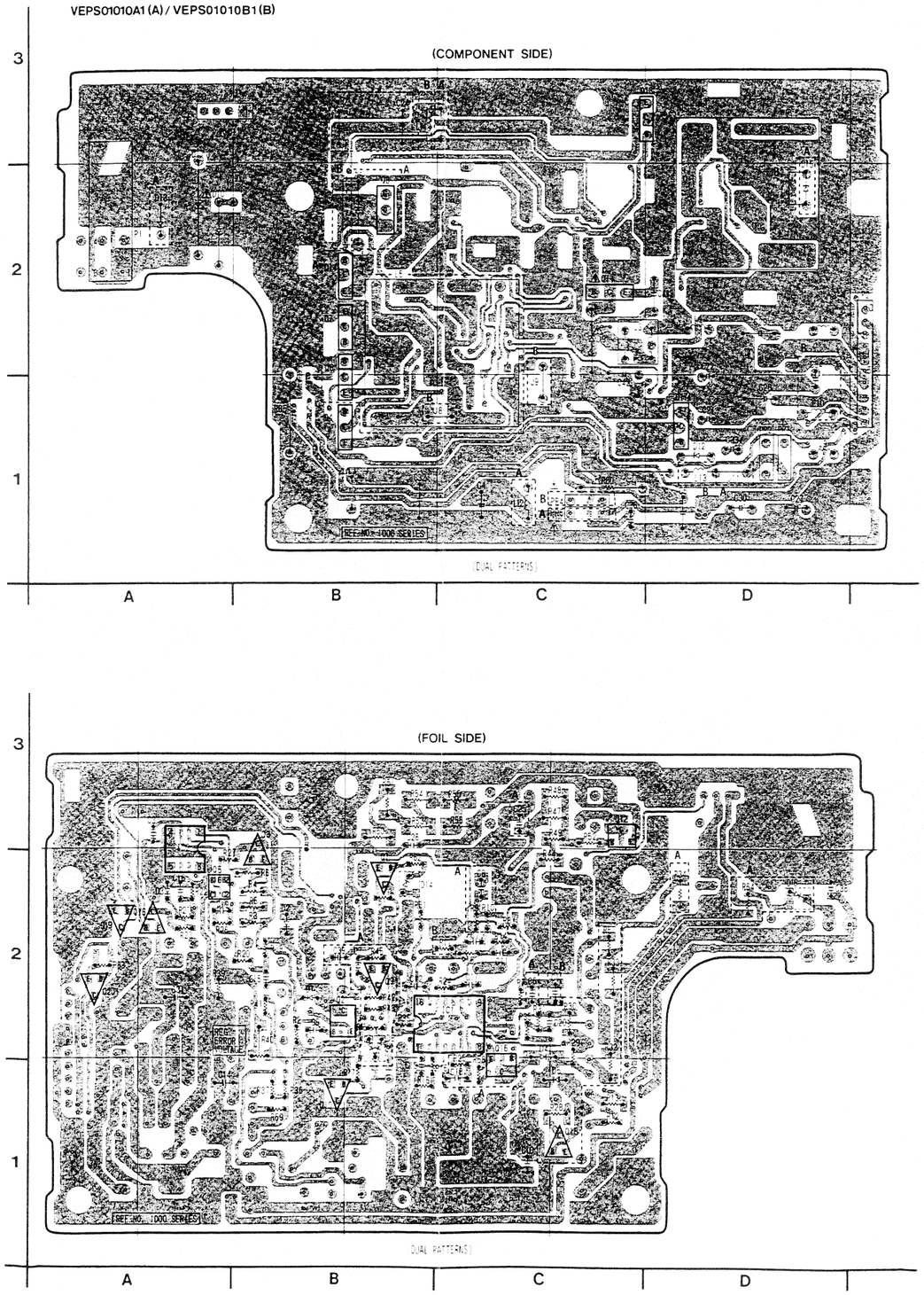
Schaltbild Netzteil
Power Supply Schematic Diagram

Modell / Model	Hinweis / Note
7 607 900 036 (12V)	A
7 607 900 031 (24V)	B
7 607 900 032 (24V)	B


NOTE: HOW TO READ CONVERGED LINES
[100]B4
LOCATION GRID OF THE OTHER END OF THE LINE
LINE NUMBER
NOTE:
1. DO NOT USE THE PART NUMBER SHOWN ON THIS DRAWING FOR ORDERING. THE CORRECT PART NUMBER IS SHOWN IN THE PARTS LIST. AND MAY BE SLIGHTLY DIFFERENT OR AMENDED SINCE THIS DRAWING WAS PREPARED.
2. MAINTAIN ORIGINAL FUNCTION AND RELIABILITY OF REPAIRED UNITS. ONLY USE ORIGINAL REPLACEMENT PARTS WHICH ARE LISTED WITH THEIR PART NUMBERS IN THE PARTS LIST SECTION OF THE SERVICE MANUAL.
P1002 TO MAIN
1 POWER ON (H) P1201-1
2 +12V P1201-2
3 H1-F1 +12V P1201-3
4 +5V (VIDEO) P1201-4
5 +5V (SYS.CTL) P1201-5
6 GND P1201-6
7 GND P1201-7
8 TV POWER ON (L) P1201-8
9 EXT +B P1201-9
10 ACC P1201-10
IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY WHEN REPLACING ANY OF THESE COMPONENTS. USE ONLY THE SPECIFIED PARTS.
NOTE: REF. NO. ON C.B.A. IS PRINTED AS FOLLOWS.
EXAMPLE: C.B.A....R2. REF. NO.1000 SERIES.
SCHEMATIC DIAGRAM....R1002
(R1002 IS ABBREVIATED TO R2.)
UNLESS OTHERWISE SPECIFIED:
WATTAGE OF RESISTORS ARE 1/10W.
IC1001 UPC1150GS (SWITCHING DRIVE)
IC1002 AN1393S (COMPARATOR)
Q1011 2SB953A(P,Q) (SWITCHING)
Q1012 2SD874A(Q) (SWITCHING DRIVE)
Q1013 2SB793A(R,S) (SWITCHING DRIVE)
Q1014 2SB1050(Q,R) (SWITCHING DRIVE)
Q1015 2SB766A(R,S) (SWITCHING POWER ON-ON)
Q1018 UN2111 (SWITCHING POWER ON-ON)
Q1019 UN2213 (SWITCHING POWER ON-ON)
Q1020 2SB709(Q,R,S) (SWITCHING TV POWER ON-ON)
D1004 SFPM-52V
D1005 SFPM-52VL
D1006 ERC81-004
D1009 ERC81-004
D1001 MA728
D1002 SFPB-54V
D1003 MA8051-W (5.1V)
D1007 MA8220-W (22V)
D1008 MA151WK
D1013 R06.2E8 (6.2V)
D1015 MA4068-W (6.8V)
D1016 WA151K
L1005 ETS26K702A
L1007 ETS26K703A
L1012 VLPS0074
L1013 VLPS0074
L1014 VLPS0074
PR1001 ICP-F25
PR1002 ICP-F25
PR1004 ICP-F25
PR1005 ICP-F25
REG +5V CONTROL
ERROR VOLTAGE DET
F
G
H
I
J
K
L
M
N
O

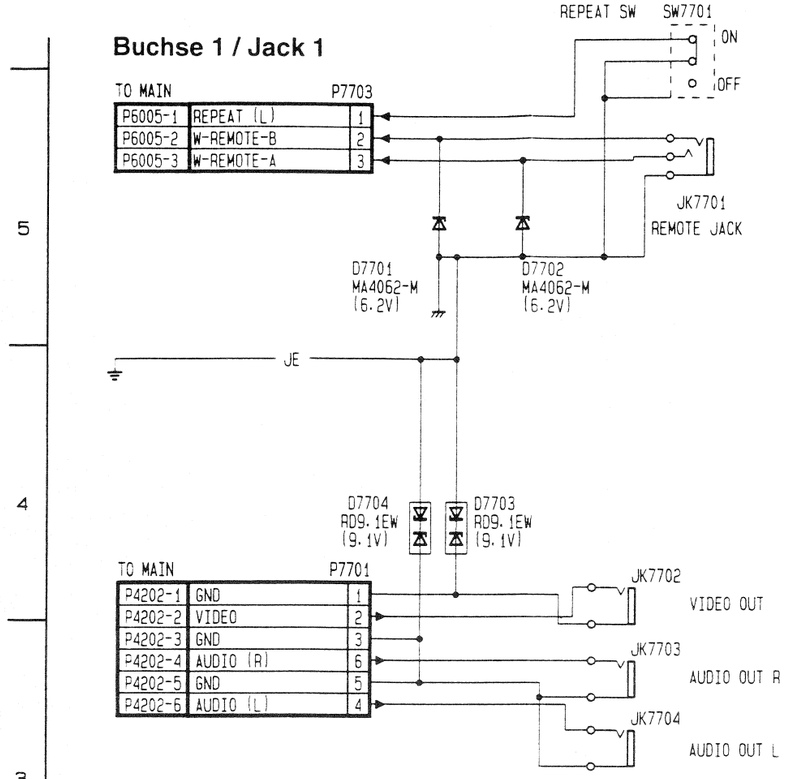
Netzteilplatte
Power Supply C.B.A.

VEPS01010A1 (A) / VEPS01010B1 (B)

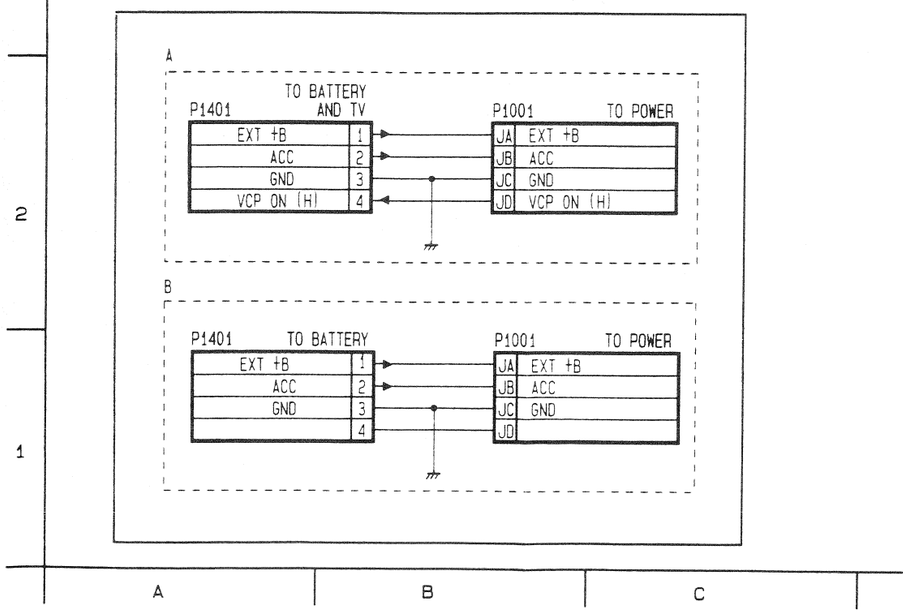


Schaltbild der Anschlußbuchsen
Connection Jack Schematic Diagram

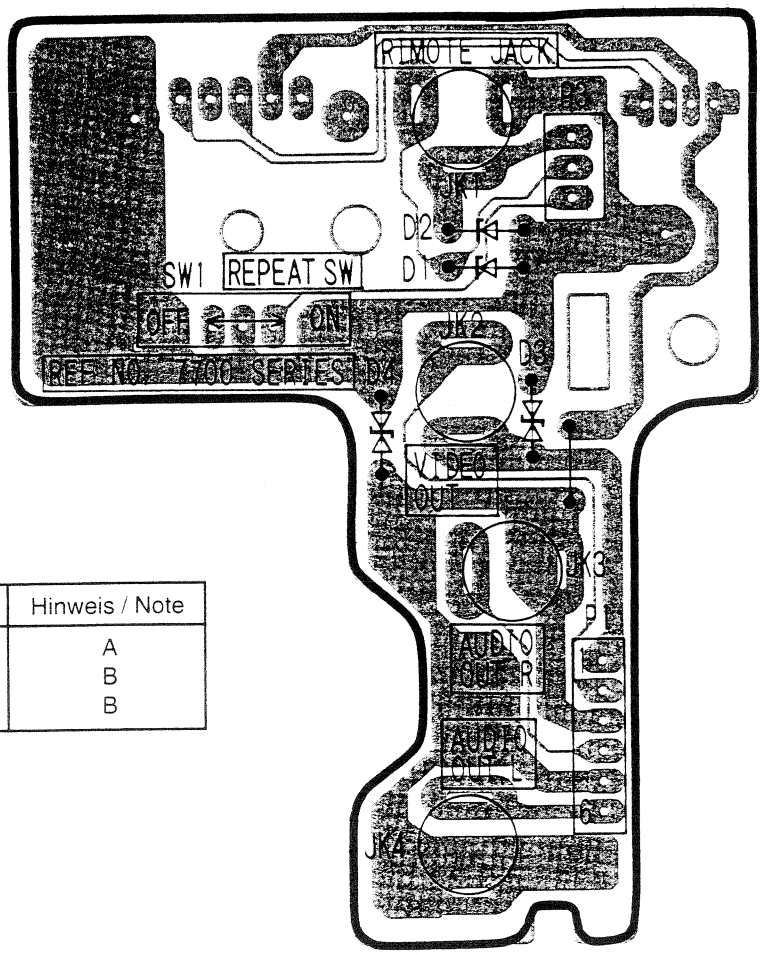
Buchse 1 / Jack 1



Buchse 2 / Jack 2

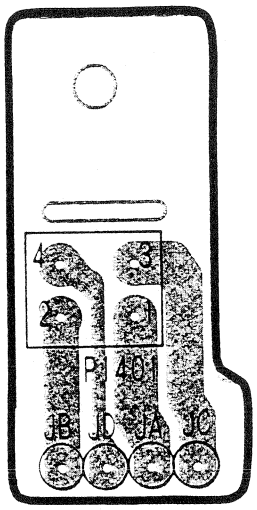


Buchsenplatte 1
Jack 1 C.B.A.

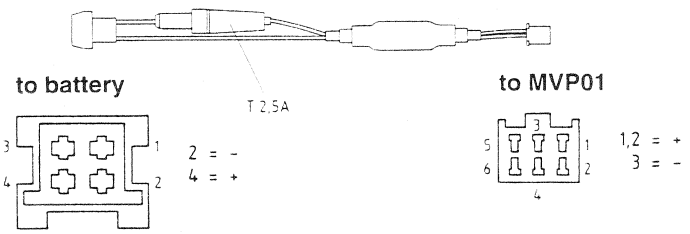


Modell / Model	Hinweis / Note
7 607 900 036 (12V)	A
7 607 900 031 (24V)	B
7 607 900 032 (24V)	B

Buchsenplatte 2
Jack 2 C.B.A.

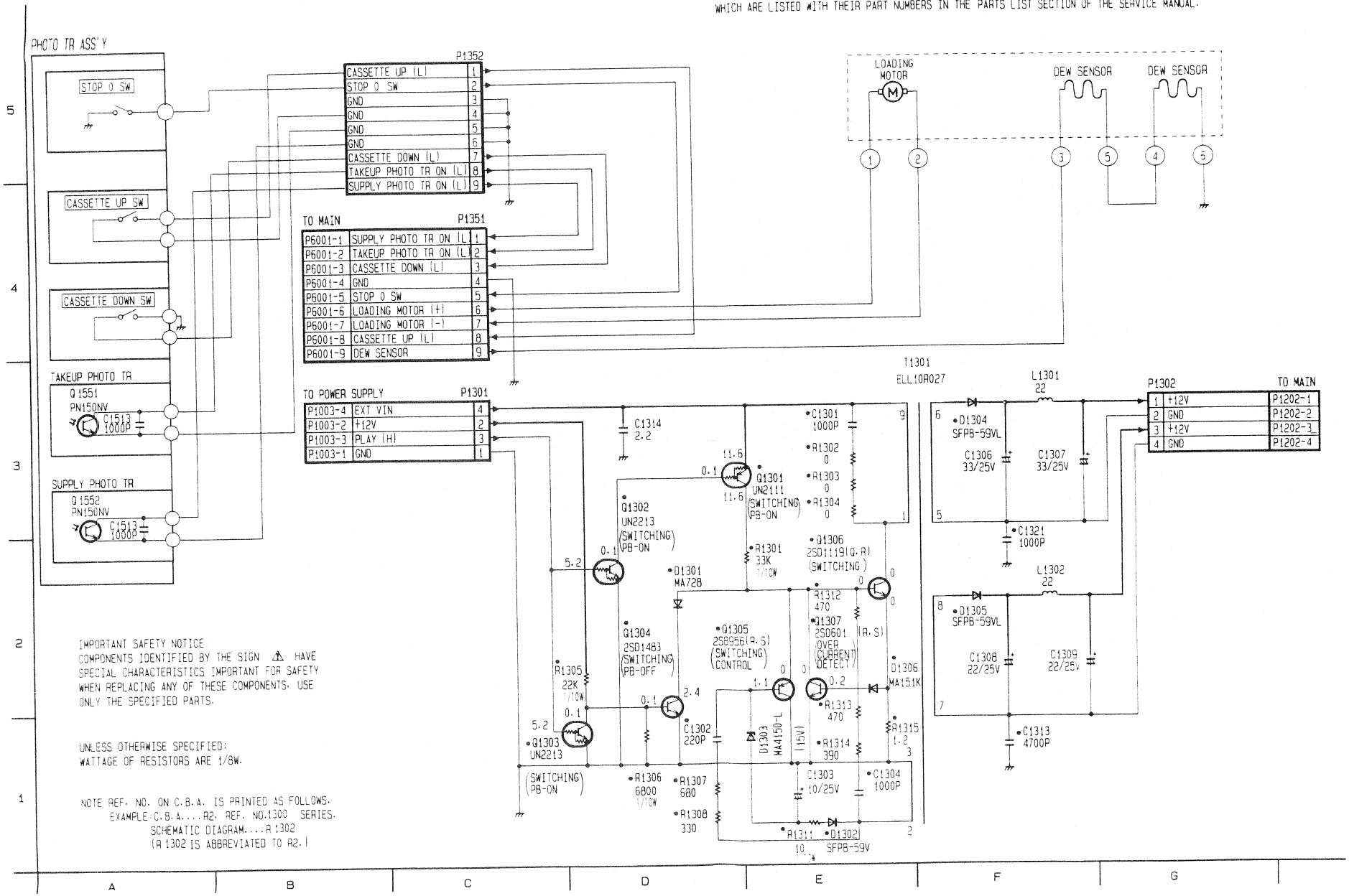


Anschlußkabel mit Entstörglied
Connecting cable with noise filter

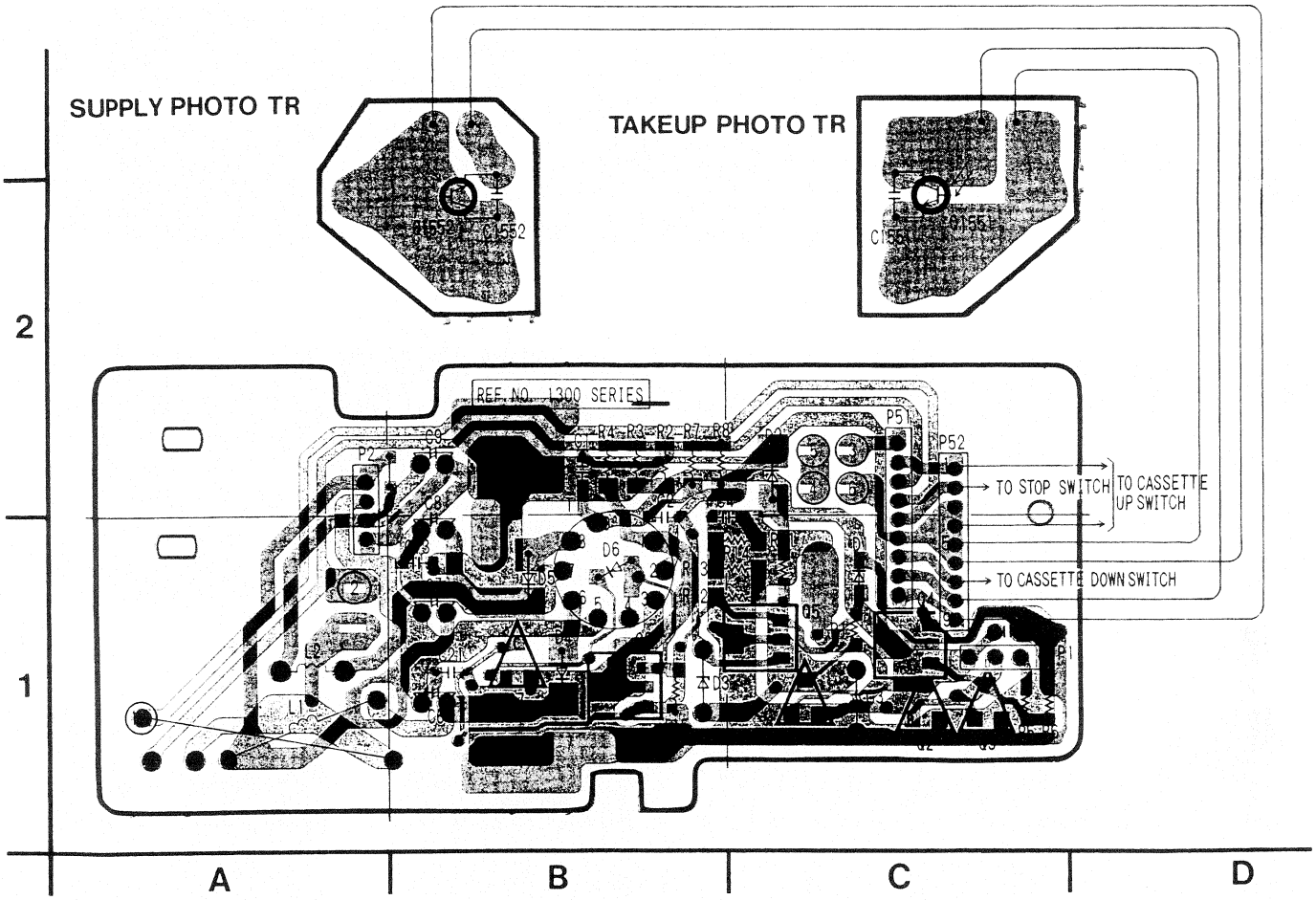


Zusatz-Netzteilplatine (A/V Power)
Sub Power C.B.A. (A/V Power)

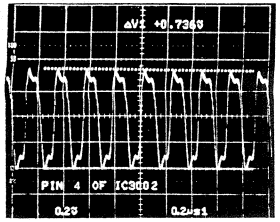
NOTE
1. DO NOT USE THE PART NUMBER SHOWN ON THIS DRAWING FOR ORDERING. THE CORRECT PART NUMBER IS SHOWN IN THE PARTS LIST, AND MAY BE SLIGHTLY DIFFERENT OR AMENDED SINCE THIS DRAWING WAS PREPARED.
2. MAINTAIN ORIGINAL FUNCTION AND RELIABILITY OF REPAIRED UNITS. ONLY USE ORIGINAL REPLACEMENT PARTS WHICH ARE LISTED WITH THEIR PART NUMBERS IN THE PARTS LIST SECTION OF THE SERVICE MANUAL.

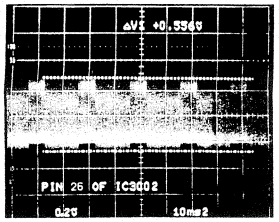


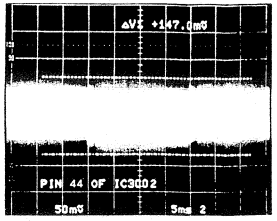
Schaltbild Zusatz-Netzteil (A/V Power)
Sub Power Schematic Diagram (A/V Power)

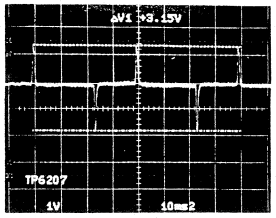


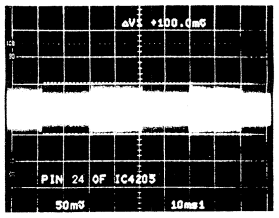
Oszillogramme
Oscillograms

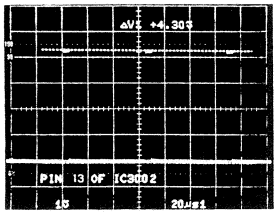


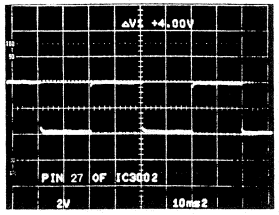


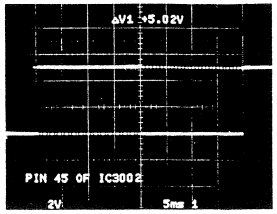


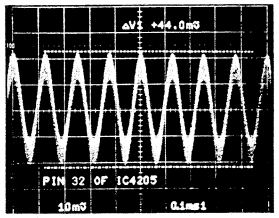


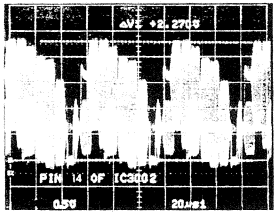


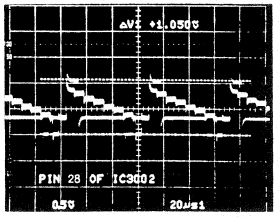


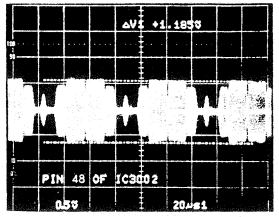


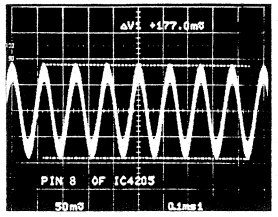


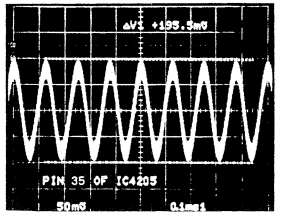


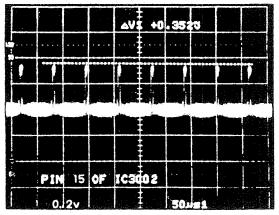


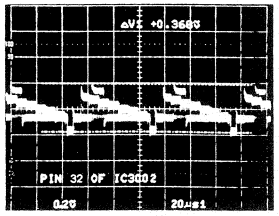


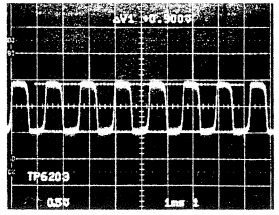


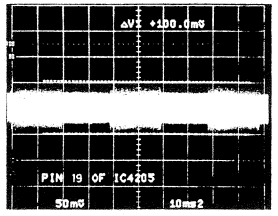


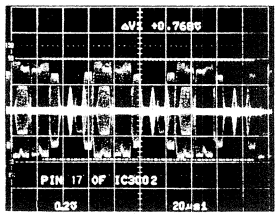


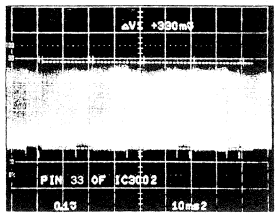


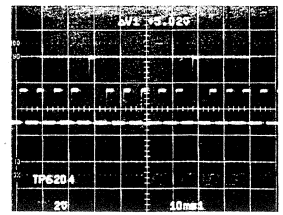


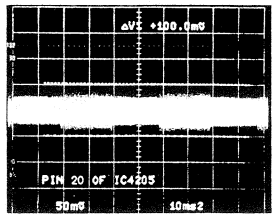


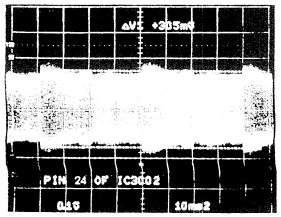


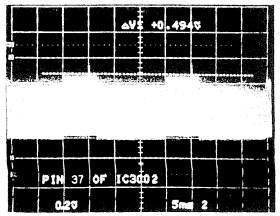


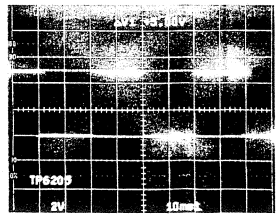


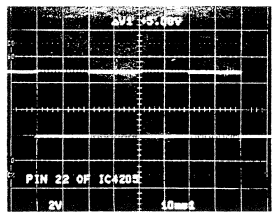












Spannungstabelle (Servo/System Control)
Voltage Chart (Servo/System Control)

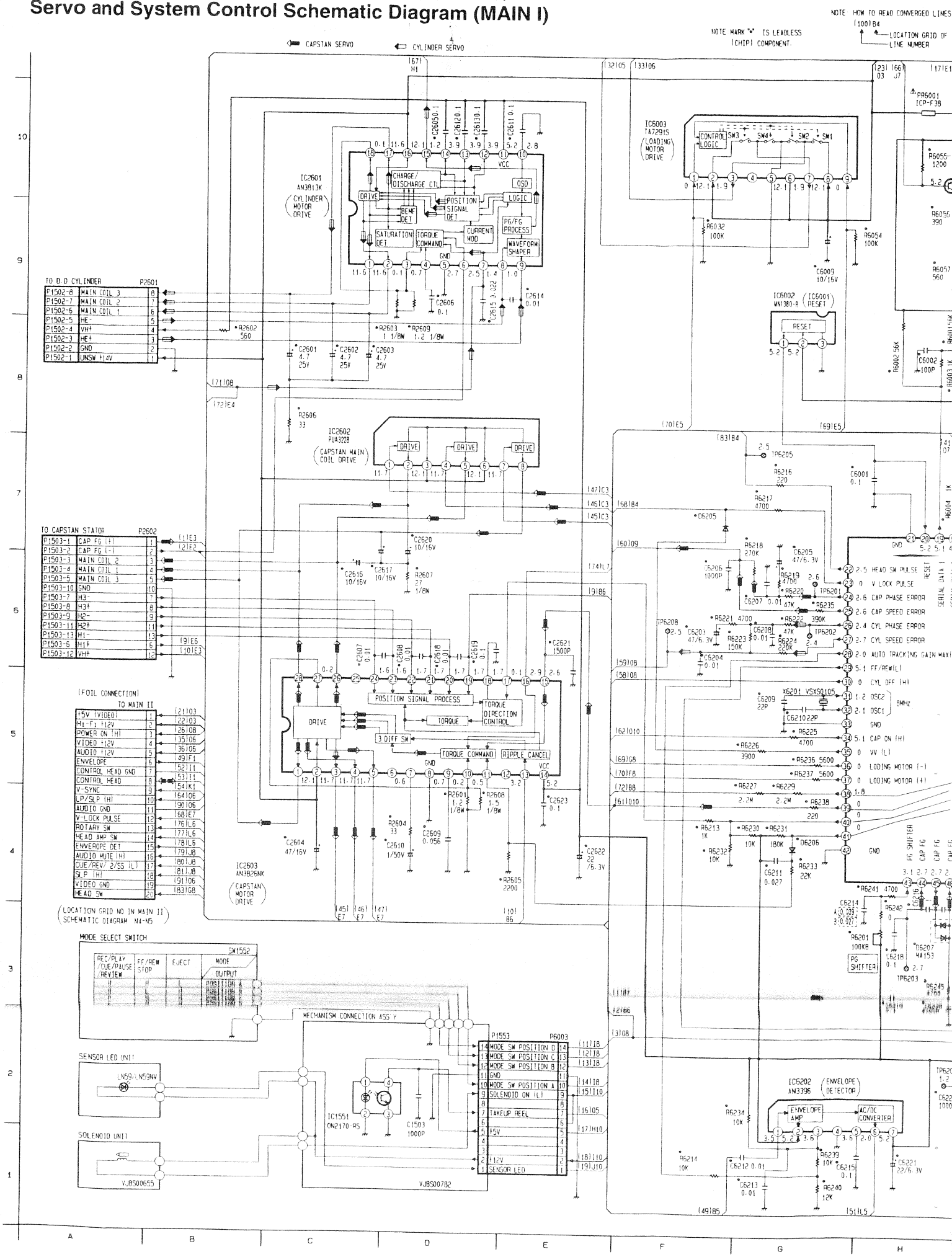
MODE / PIN NO	STOP	FF	REW
IC2601			
1	12.1	12.1	12.1
2	12.1	12.1	12.1
3	0.1	0.1	0.1
4	0	0	0
5	0	0	0
6	2.7	2.7	2.7
7	4.8	4.8	4.8
8	1.4	1.4	1.4
9	1.0	1.0	1.0
10	1.3	1.3	1.3
11	5.2	5.2	5.2
12	4.4	4.4	4.4
13	4.4	4.4	4.4
14	4.0	4.0	4.0
15	5.2	5.2	5.2
16	12.1	12.1	12.1
17	12.1	12.1	12.1
18	0.1	0.1	0.1
IC2602			
1	12.0	12.0	12.0
2	2.8	2.8	2.8
3	12.1	12.1	12.1
4	12.0	12.0	12.0
5	2.8	2.8	2.8
6	12.1	12.1	12.1
7	11.6	11.6	11.6
8	2.8	2.8	2.8
IC2603			
1	2.8	2.8	2.8
2	12.1	12.1	12.1
3	11.6	11.6	11.6
4	12.0	12.0	12.0
5	12.0	12.0	12.0
6	---	---	---
7	0.6	0.6	0.6
8	0	0	0
9	0.2	0.2	0.2
10	0	0	0
11	0.5	0.5	0.5
12	---	---	---
13	3.2	3.2	3.2
14	5.2	5.2	5.2
15	1.2	1.2	1.2
16	2.9	2.9	2.9
17	2.7	2.7	2.7
18	1.7	1.7	1.7
19	1.7	1.7	1.7
20	1.7	1.7	1.7
21	1.7	1.7	1.7
22	1.7	1.7	1.7
23	1.6	1.6	1.6
24	1.6	1.6	1.6
25	---	---	---
26	2.8	2.8	2.8
27	0	0	0
28	2.8	2.8	2.8
IC6001			
1	5.1	5.1	5.1
2	0	0	0
3	5.2	5.2	5.2
4	5.2	5.2	5.2

MODE / PIN NO	STOP	FF	REW
5	5.1	5.1	5.1
6	5.2	5.2	5.2
7	1.4	2.6	2.6
8	5.2	5.2	5.2
9	5.2	5.2	5.2
10	5.2	5.2	5.2
11	5.2	5.2	5.2
12	0	0	0
13	5.2	5.2	5.2
14	0	0	0
15	0	0	0
16	0	0	0
17	5.0	5.0	5.0
18	4.9	4.9	4.9
19	5.1	5.1	5.1
20	5.2	5.2	5.2
21	0	0	0
22	0.1	0.1	0.1
23	0.2	0.2	0.2
24	2.6	2.6	2.6
25	0	2.6	2.6
26	2.6	2.6	2.6
27	0.1	0.1	0.1
28	2.0	2.0	2.0
29	5.1	0.1	0.1
30	5.1	5.1	5.1
31	1.2	1.2	1.2
32	2.1	2.1	2.1
33	0.1	0.1	0.1
34	0	5.1	5.1
35	5.0	5.0	5.0
36	0	0	0
37	0	0	0
38	3.3	3.3	3.3
39	1.2	2.7	2.7
40	2.6	0.1	5.0
41	5.1	5.1	5.1
42	0	0	0
43	5.2	5.2	5.2
44	2.6	2.6	2.6
45	2.8	0	2.7
46	2.7	2.7	2.7
47	5.2	5.2	5.2
48	0	0	0
49	0	0	0
50	2.7	2.7	2.7
51	2.7	2.7	2.7
52	2.3	3.2	3.2
53	2.8	2.6	2.6
54	5.2	5.2	5.2
55	0	0	0
56	0	0	0
57	0	0	0
58	2.7	2.7	2.7
59	2.7	2.7	2.7
60	0	0	0
61	2.8	3.3	3.3
62	2.7	2.7	2.7
63	5.2	5.2	5.2
64	2.6	2.6	2.6
65	3.9	3.9	3.9
66	3.4	3.4	3.4

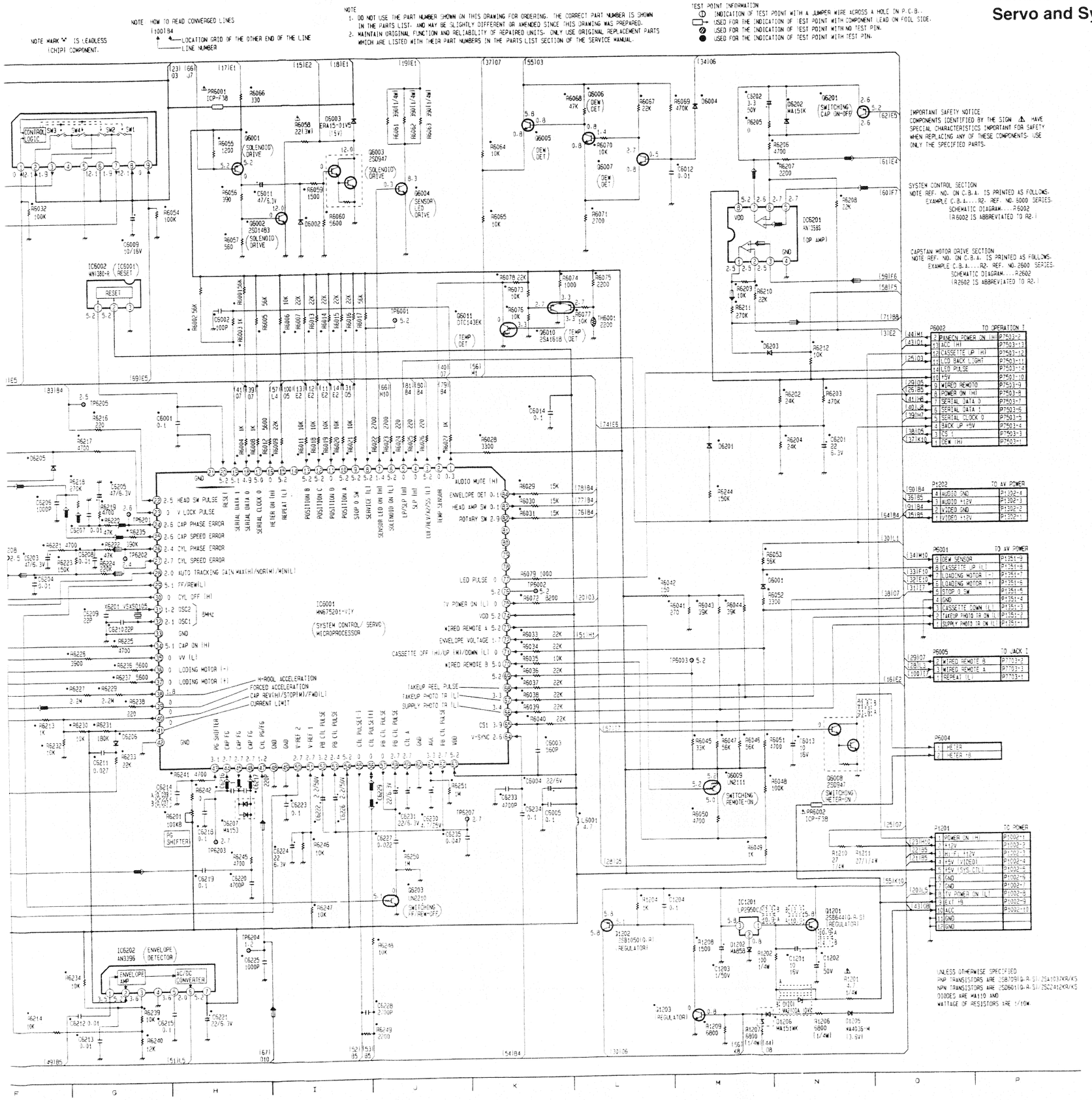
MODE / PIN NO	STOP	FF	REW
67	3.3	3.3	3.3
68	4.8	2.2	2.4
69	5.2	5.2	5.2
70	5.0	5.0	5.0
71	0	0	0
72	0.8	0.8	0.8
73	5.2	5.2	5.2
74	5.2	5.2	5.2
75	5.2	5.2	5.2
76	0	5.2	5.2
77	0	0	0
78	---	---	---
79	---	---	---
80	---	---	---
81	---	---	---
82	5.1	5.1	5.1
83	5.1	5.1	5.1
84	0.1	0.1	0.1
IC6002			
1	5.2	5.2	5.2
2	5.2	5.2	5.2
3	0	0	0
IC6003			
1	0	0	0
2	12.1	12.1	12.1
3	0.6	0.6	0.3
4	---	---	---
5	0	0	0
6	12.1	12.1	12.1
7	0.7	0.7	0.7
8	12.1	12.1	12.1
9	0	0	0
IC6201			
1	0.9	0.9	0.9
2	1.4	1.4	1.4
3	1.4	1.4	1.4
4	0	0	0
5	1.4	2.7	2.7
6	1.4	2.6	2.6
7	1.2	2.6	2.6
8	5.2	5.2	5.2
IC6202			
1	3.5	3.5	3.5
2	5.2	5.2	5.2
3	3.6	3.6	3.6
4	0	0	0
5	3.6	3.6	3.6
6	0.8	0.8	0.8
7	5.2	5.2	5.2
Q6001			
E	5.2	5.2	5.2
C	0	0	0
B	5.2	5.2	5.2
Q6002			
E	0	0	0
C	12.1	12.1	12.1
B	0	0	0

MODE / PIN NO	STOP	FF	REW
Q6003			
E	0	0	0
C	12.1	12.1	12.1
B	0	0	0
Q6004			
E	0	0	0
C	8.3	5.4	5.4
B	0.3	0.5	0.5
Q6005			
E	0.8	0.8	0.8
C	5.8	5.8	5.8
B	0.8	0.8	0.8
Q6006			
E	0.8	0.8	0.8
C	0.8	0.8	0.8
B	1.4	1.4	1.4
Q6007			
E	0.8	0.8	0.8
C	2.7	2.7	2.7
B	0.5	0.5	0.5
Q6008			
E	0	0	0
C	11.0	11.6	11.6
B	0	0	0
Q6009			
E	5.2	5.2	5.2
C	5.0	5.0	5.0
B	5.2	5.2	5.2
Q6010			
E	0	0	0
C1	0	0	0
C2	3.3	3.3	3.3
B1	2.7	2.7	2.7
B2	2.7	2.7	2.7
Q6011			
E	0	0	0
C	0	0	0
B	3.3	3.3	3.3
Q6201			
E	1.2	2.6	2.6
C	1.2	2.6	2.6
B	0.6	5.1	5.1
Q6203			
E	0	0	0
C	0	0	0
B	5.1	0	0
TP6001	5.2	5.2	5.2
TP6002	5.2	5.2	5.2
TP6003	5.2	5.2	5.2
TP6201	2.6	2.6	2.6
TP6202	2.6	2.6	2.6
TP6203	2.7	2.7	2.7
TP6204	5.2	5.2	5.2
TP6205	5.1	5.1	5.1
TP6207	2.7	2.7	2.7
TP6208	1.4	1.4	1.4

Servo and System Control Schematic Diagram (MAIN I)



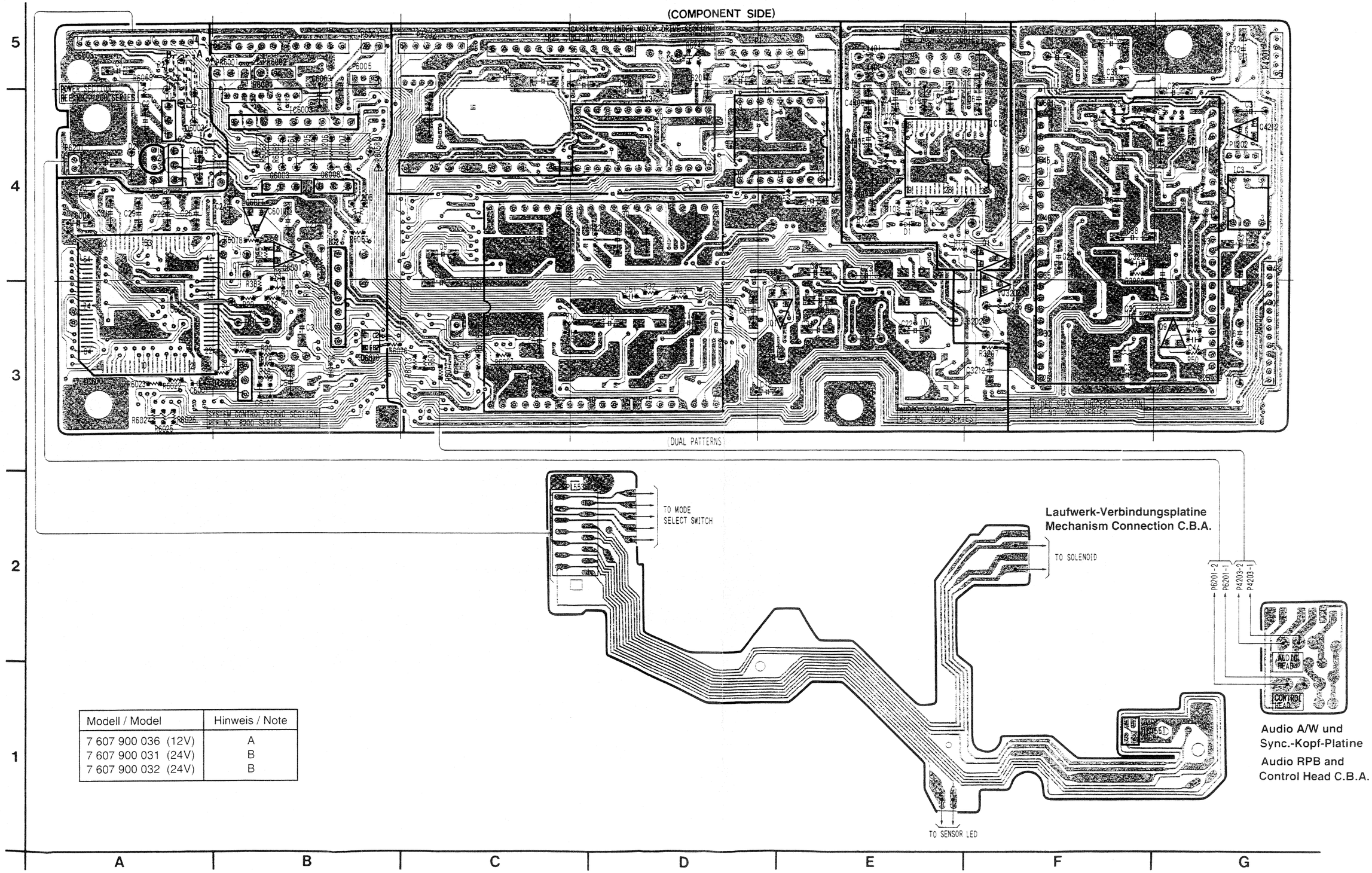
Schaltbild Servoteil und Systemsteuerung (MAIN I)
Servo and System Control Schematic Diagram (MAIN I)


NOTE MARK '*' IS LEADLESS (CHIP) COMPONENT.
NOTE HOW TO READ CONVERGED LINES
NOTE
1. DO NOT USE THE PART NUMBER SHOWN ON THIS DRAWING FOR ORDERING. THE CORRECT PART NUMBER IS SHOWN IN THE PARTS LIST, AND MAY BE SLIGHTLY DIFFERENT OR AMENDED SINCE THIS DRAWING WAS PREPARED.
2. MAINTAIN ORIGINAL FUNCTION AND RELIABILITY OF REPAIRED UNITS. ONLY USE ORIGINAL REPLACEMENT PARTS WHICH ARE LISTED WITH THEIR PART NUMBERS IN THE PARTS LIST SECTION OF THE SERVICE MANUAL.
TEST POINT INFORMATION
INDICATION OF TEST POINT WITH A JUMPER WIRE ACROSS A HOLE IN P.C.B.
USED FOR THE INDICATION OF TEST POINT WITH COMPONENT LEAD ON FOIL SIDE.
USED FOR THE INDICATION OF TEST POINT WITH NO TEST PIN.
USED FOR THE INDICATION OF TEST POINT WITH TEST PIN.
IMPORTANT SAFETY NOTICE
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.
SYSTEM CONTROL SECTION
NOTE REF. NO. ON C.B.A. IS PRINTED AS FOLLOWS.
EXAMPLE C.B.A....R2, REF. NO. 5000 SERIES.
SCHEMATIC DIAGRAM....P5002
(R5002 IS ABBREVIATED TO R2.)
CAPSTAN MOTOR DRIVE SECTION
NOTE REF. NO. ON C.B.A. IS PRINTED AS FOLLOWS.
EXAMPLE C.B.A....R2, REF. NO. 2600 SERIES.
SCHEMATIC DIAGRAM....P2602
(R2602 IS ABBREVIATED TO R2.)
P6002 TO OPERATION I
P1202 TO AV POWER
P6001 TO AV POWER
P6005 TO JACK I
P6004
P1201 TO POWER
UNLESS OTHERWISE SPECIFIED
PNP TRANSISTORS ARE DSB709(Q,R,S) 2SA1037K(R/K5)
NPN TRANSISTORS ARE DSD601(Q,R,S) 2SC2412K(R/K5)
DIODES ARE MA119 AMD
WATTAGE OF RESISTORS ARE 1/10W

Modell / Model	Hinweis / Note
7 607 900 036 (12V)	A
7 607 900 031 (24V)	B
7 607 900 032 (24V)	B

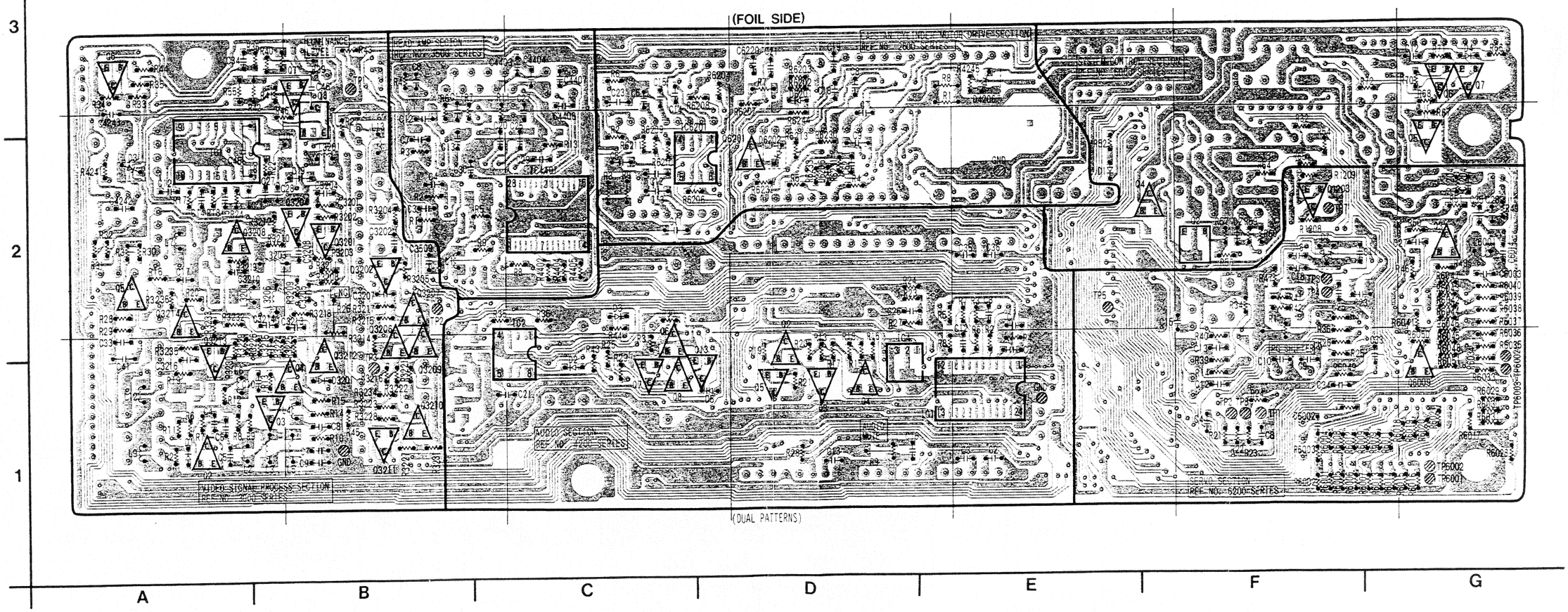
Hauptplatte (MAIN I)
MAIN I C.B.A.

VEPS02169A1(A) / VEPS012169B1(B)

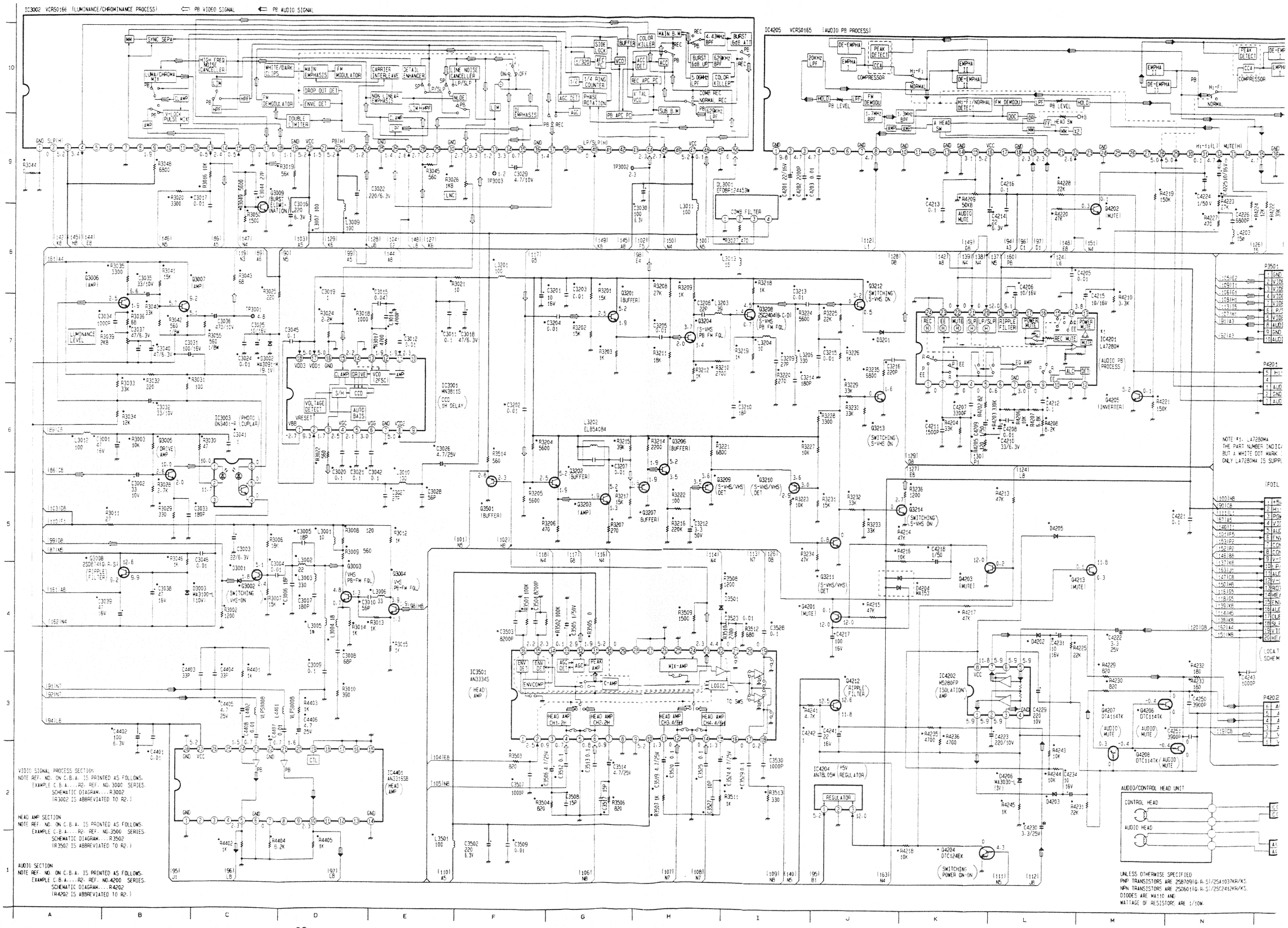


Modell / Model	Hinweis / Note
7 607 900 036 (12V)	A
7 607 900 031 (24V)	B
7 607 900 032 (24V)	B

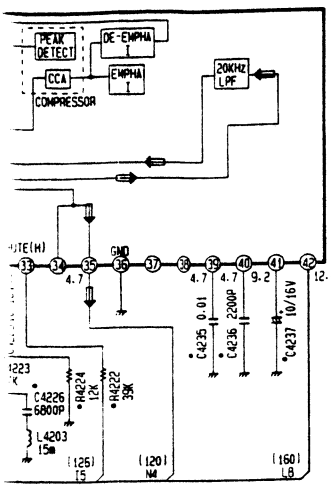
Hauptplatte (MAIN II)
MAIN II C.B.A.



Schaltbild Audio-/Video-Signalteil und Kopfverstärker (MAIN II)
Audio/Video Signal Section and Head Amp. Schematic Diagram (MAIN II)


IC3002 VCRS0166 (LUMINANCE/CHROMINANCE PROCESS)
PB VIDEO SIGNAL
PB AUDIO SIGNAL
IC4205 VCRS0165 (AUDIO PB PROCESS)
IC3501 AN3334S (HEAD AMP)
IC4401 AN3315S (HEAD AMP)
IC4201 LA7280M (AUDIO PB PROCESS)
IC4202 M5280FP (ISOLATION AMP)
IC4204 AN78L05M (+5V REGULATOR)
IC3001 MN3811S (CCD 1H DELAY)
IC3003 ON3401-R (PHOTO COUPLER)
AUDIO/CONTROL HEAD UNIT
CONTROL HEAD
AUDIO HEAD
VIDEO SIGNAL PROCESS SECTION:
NOTE REF. NO. ON C.B.A. IS PRINTED AS FOLLOWS.
EXAMPLE C.B.A....R2- REF. NO.3000 SERIES.
SCHEMATIC DIAGRAM....R3002
(R3002 IS ABBREVIATED TO R2-)
HEAD AMP SECTION
NOTE REF. NO. ON C.B.A. IS PRINTED AS FOLLOWS.
EXAMPLE C.B.A....R2- REF. NO.3500 SERIES.
SCHEMATIC DIAGRAM....R3502
(R3502 IS ABBREVIATED TO R2-)
AUDIO SECTION
NOTE REF. NO. ON C.B.A. IS PRINTED AS FOLLOWS.
EXAMPLE C.B.A....R2- REF. NO.4200 SERIES.
SCHEMATIC DIAGRAM....R4202
(R4202 IS ABBREVIATED TO R2-)
UNLESS OTHERWISE SPECIFIED
PNP TRANSISTORS ARE 2SB709(Q,R,S)/2SA1037K(R/K5.
NPN TRANSISTORS ARE 2SD601(Q,R,S)/2SC2412K(R/K5.
DIODES ARE MA110 AND
WATTAGE OF RESISTORS ARE 1/10W.

Schaltbild Audio-/Video-Signalteil und Kopfverstärker (MAIN II)
Audio/Video Signal Section and Head Amp. Schematic Diagram (MAIN II)



P3501 TO UPPER CYLINDER

1	GND	P3502-1
2	VIDEO SP L HEAD	P3502-2
3	VIDEO SP L/R HEAD	P3502-3
4	VIDEO SP R HEAD	P3502-4
7	VIDEO LP/SLP R HEAD	P3502-7
6	LP/SLP L/R HEAD	P3502-6
5	VIDEO LP/SLP L HEAD	P3502-5
8	AUDIO HEAD L CH	P3502-8
9	GND	P3502-9
10	AUDIO HEAD R CH	P3502-10

P4201 TO OPERATION I

5	Hi-Fi (H)	P7505-5
4		P7505-4
1	AUDIO R CH	P7505-1
2	GND	P7505-2
3	AUDIO L CH	P7505-3

1. DO NOT USE THE PART NUMBER SHOWN ON THIS DRAWING FOR ORDERING. THE CORRECT PART NUMBER IS SHOWN IN THE PARTS LIST. AND MAY BE SLIGHTLY DIFFERENT OR AMENDED SINCE THIS DRAWING WAS PREPARED.
2. MAINTAIN ORIGINAL FUNCTION AND RELIABILITY OF REPAIRED UNITS. ONLY USE ORIGINAL REPLACEMENT PARTS WHICH ARE LISTED WITH THEIR PART NUMBERS IN THE PARTS LIST SECTION OF THE SERVICE MANUAL.

NOTE *1. LA7280MA
THE PART NUMBER INDICATION ON IC LA7280MA IS LA4780M
BUT A WHITE DOT MARK IS PLACED AT PIN 1 OF IC.
ONLY LA7280MA IS SUPPLIED AS AREPLACEMENT PART.

NOTE MARK "•" IS LEADLESS
(CHIP) COMPONENT.

(FOIL CONNECTION)

TO MAIN I

1	+5V (VIDEO)	
2	Hi-Fi +12V	
3	POWER ON (H)	
4	VIDEO +12V	
5	AUDIO +12V	
6	ENVELOPE	
7	CONTROL HEAD GND	
8	CONTROL HEAD	
9	V-SYNC	
10	LP/SLP (H)	
11	AUDIO GND	
12	V-LOCK PULSE	
13	ROTARY SW	
14	HEAD AMP SW	
15	ENVELOPE DET	
16	AUDIO MUTE (H)	
17	CUE/REV/X2/SS (L)	
18	SLP (H)	
19	VIDEO GND	
20	HEAD SW	

(LOCATION GRID NO IN MAIN I SCHEMATIC DIAGRAM: B4-B5)

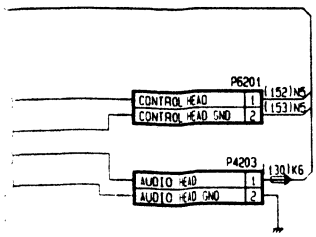
C4243 1000P

P4202 TO JACK I

6	AUDIO L CH	P7701-4
5	AUDIO GND	P7701-5
4	AUDIO R CH	P7701-6
3	AUDIO GND	P7701-3
2	VIDEO	P7701-2
1	VIDEO GND	P7701-1

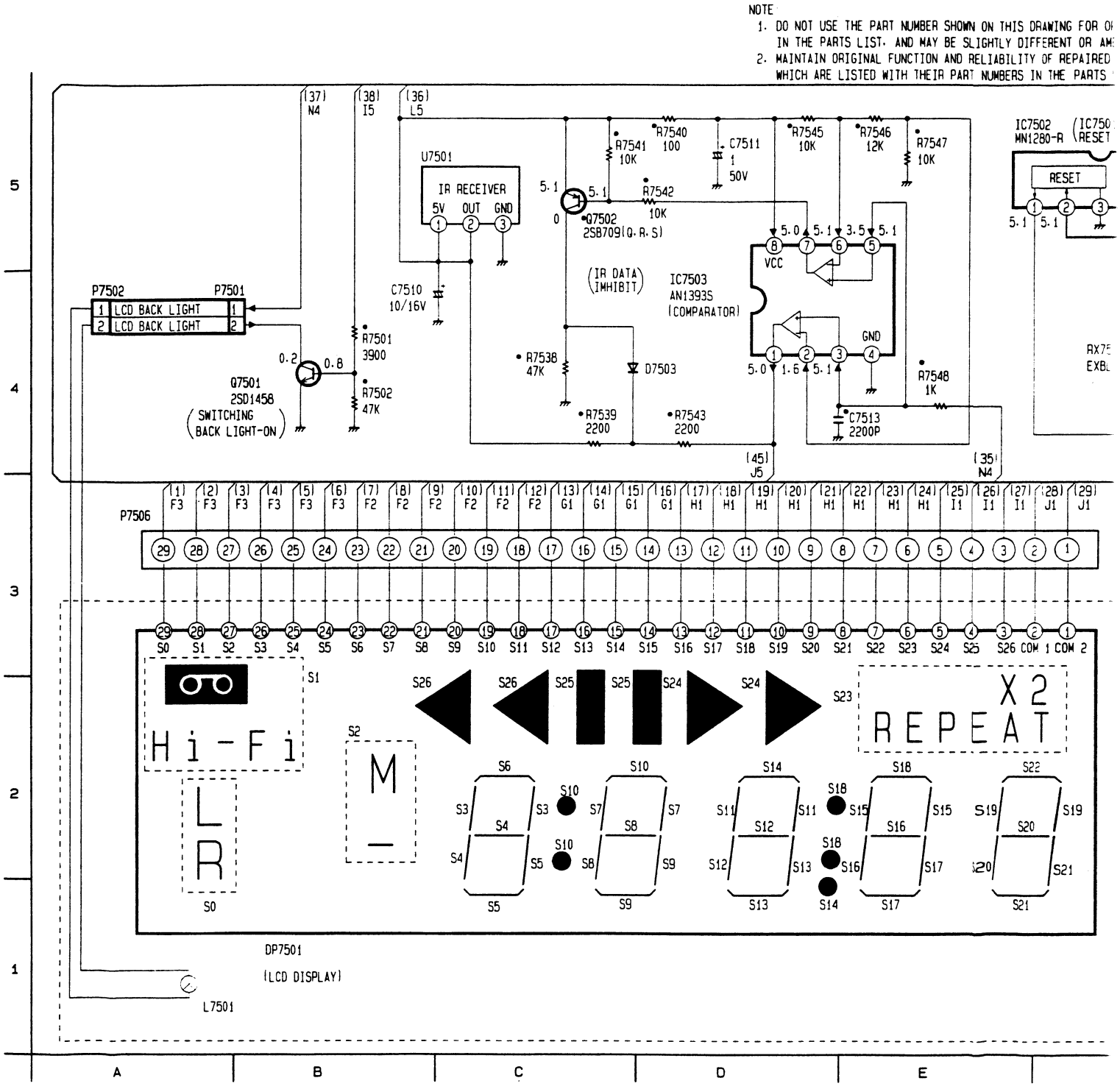
NOTE HOW TO READ CONVERGED LINES
(100)B4
LOCATION GRID OF THE OTHER END OF THE LINE
LINE NUMBER

TEST POINT INFORMATION
- INDICATION OF TEST POINT WITH A JUMPER WIRE ACROSS A HOLE IN P.C.B..
- USED FOR THE INDICATION OF TEST POINT WITH COMPONENT LEAD ON FOIL SIDE.
- USED FOR THE INDICATION OF TEST POINT WITH NO TEST PIN.
- USED FOR THE INDICATION OF TEST POINT WITH TEST PIN.



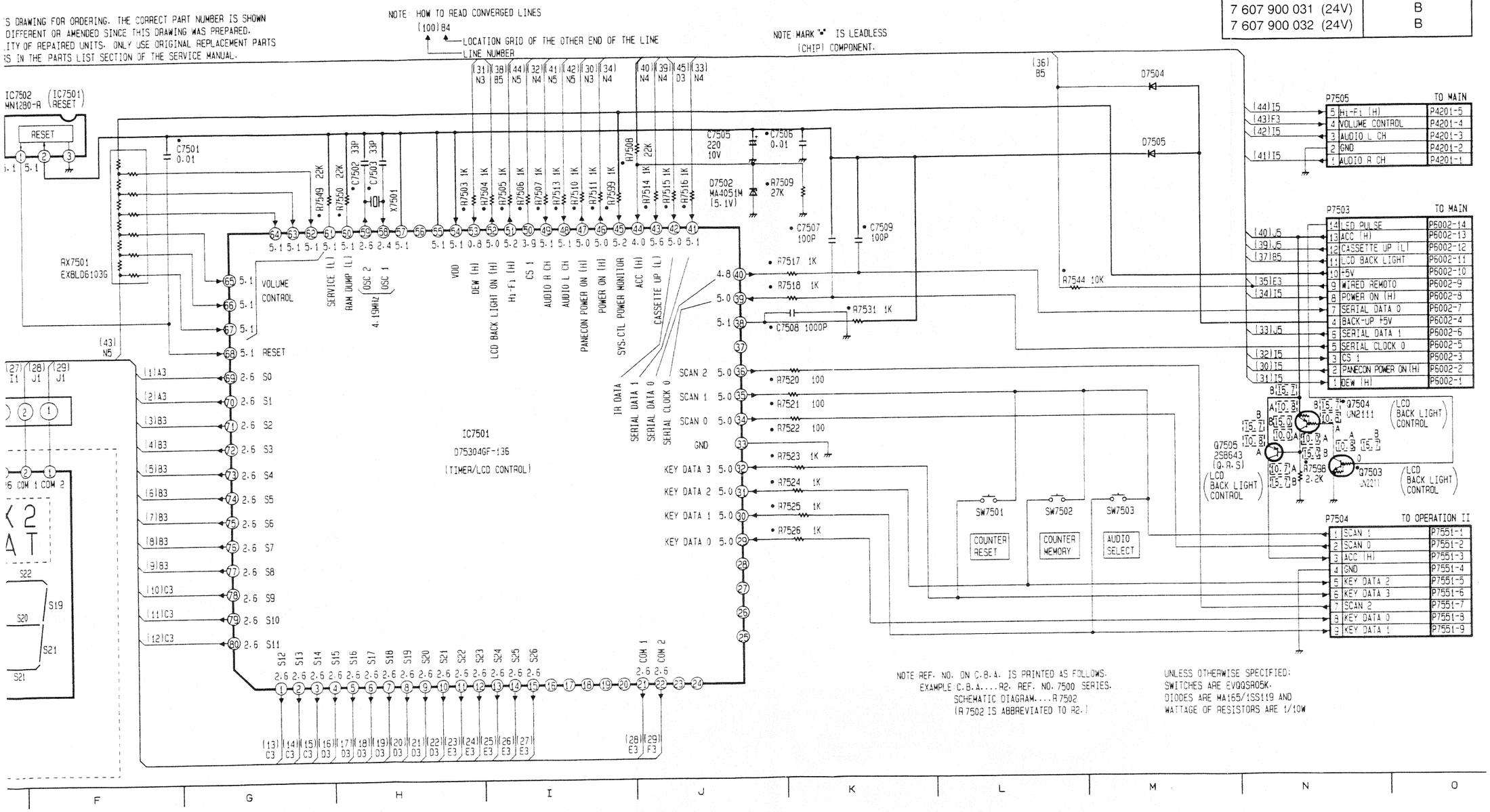
2SA1037KR/KS
2SC2412KR/KS.

Schaltbild Bedienteil 1
Control unit 1 Schematic Diagram

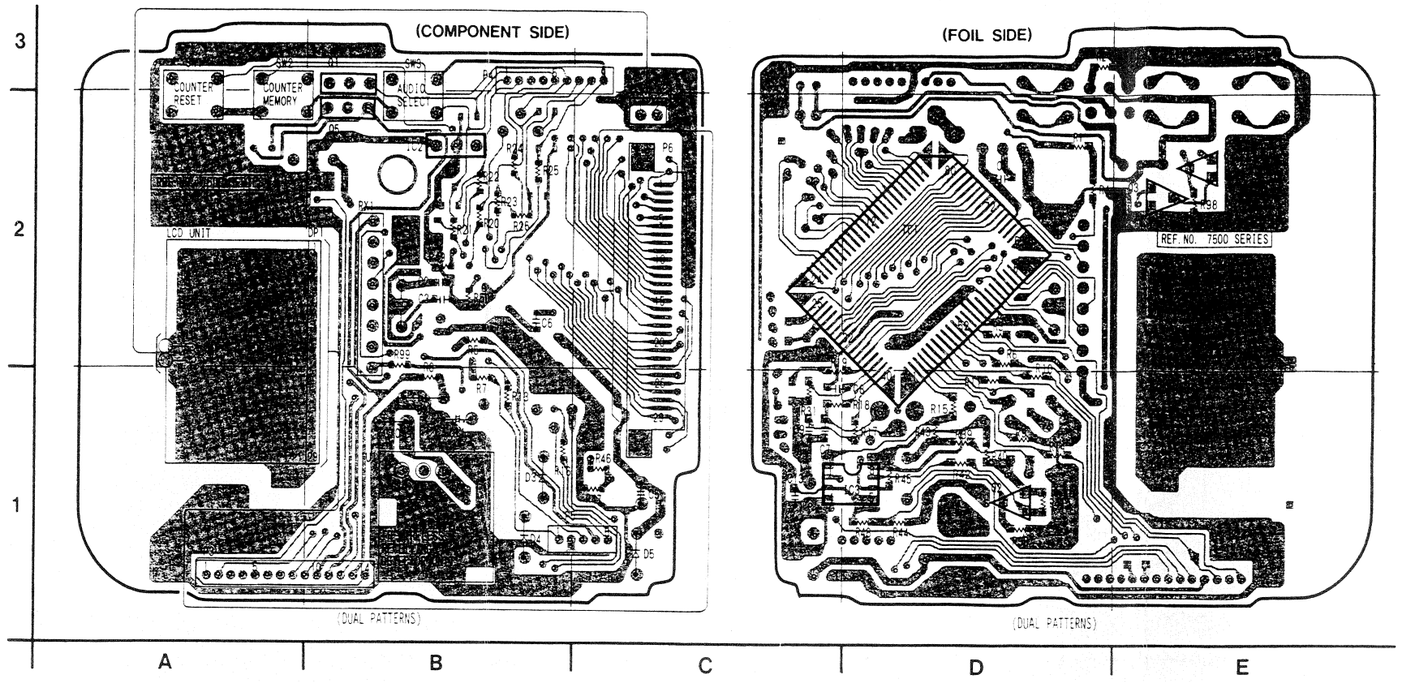


Schaltbild Bedienteil 1
Control unit 1 Schematic Diagram

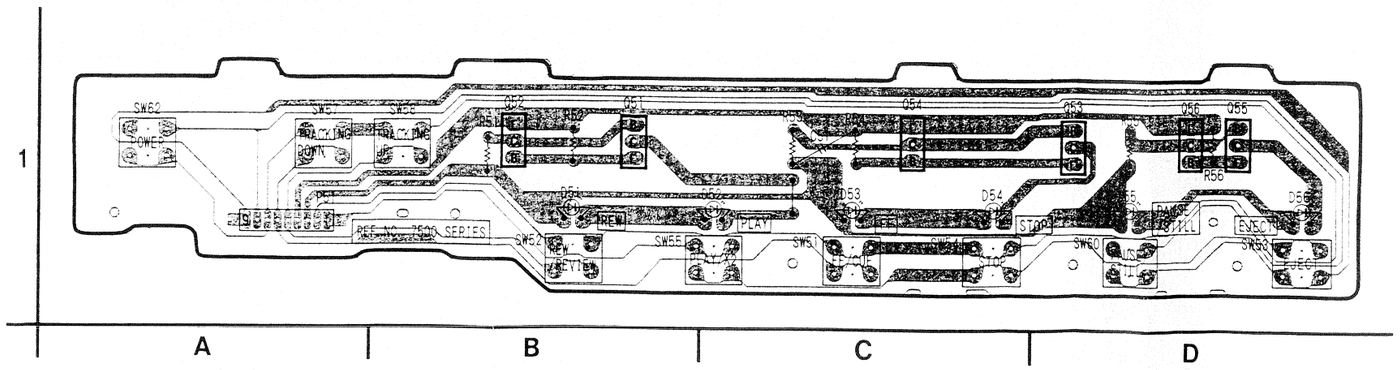
Modell / Model	Hinweis / Note
7 607 900 036 (12V)	A
7 607 900 031 (24V)	B
7 607 900 032 (24V)	B



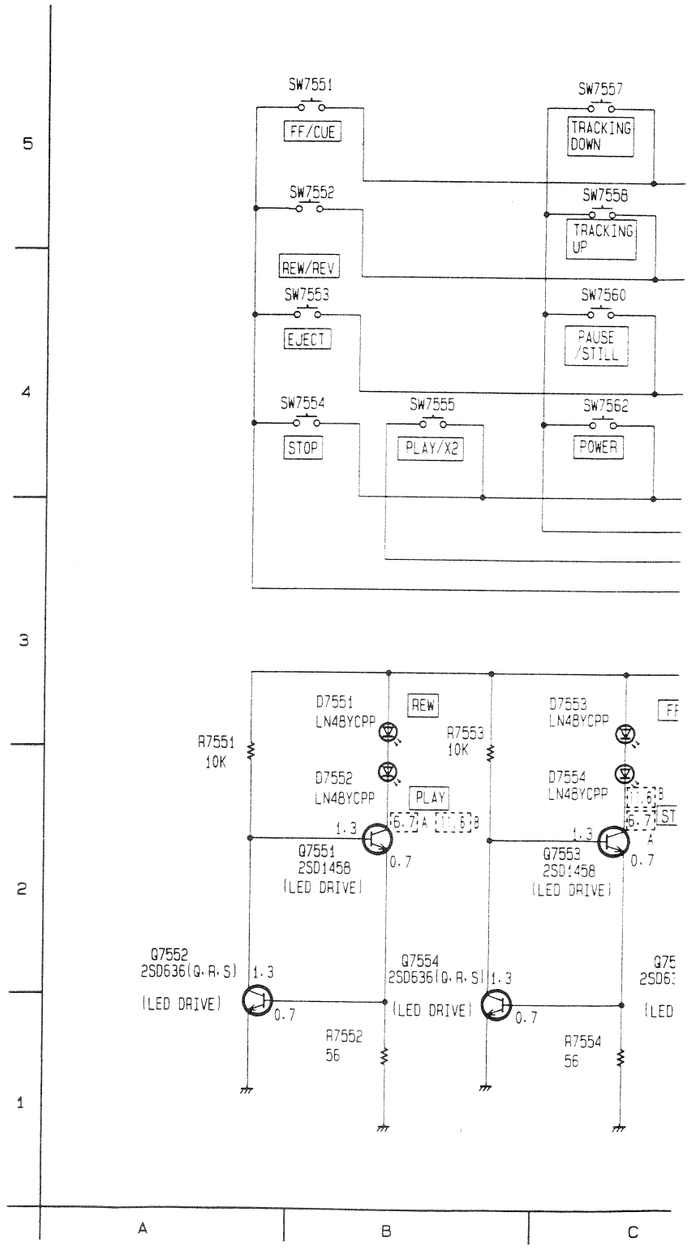
Bedienteil-Platine 1
Control unit 1 C.B.A.



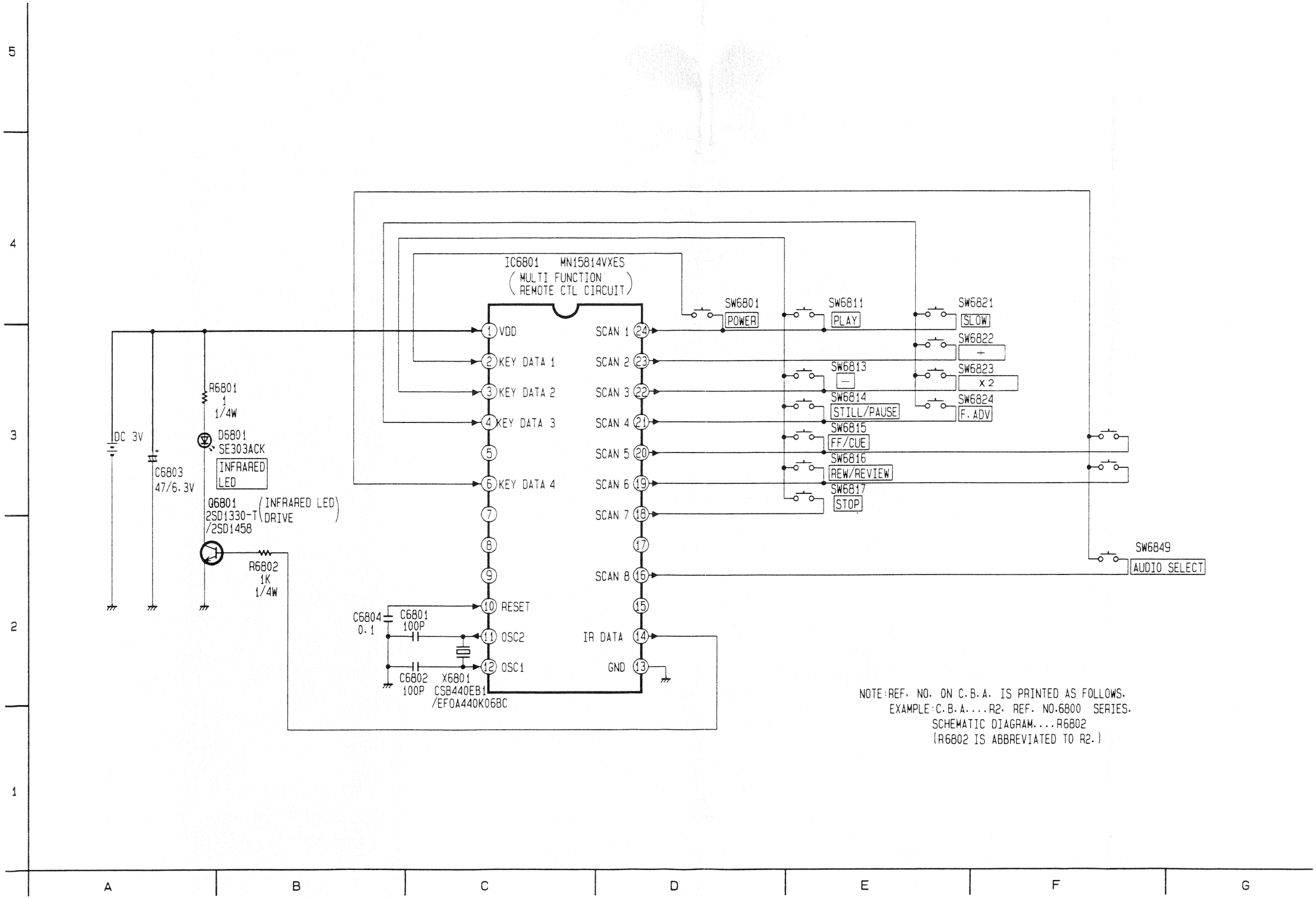
Bedienteil-Platine 2
Control unit 2 C.B.A.



Schaltbild Bedienteil 2
Control unit 2 Schematic Diagram



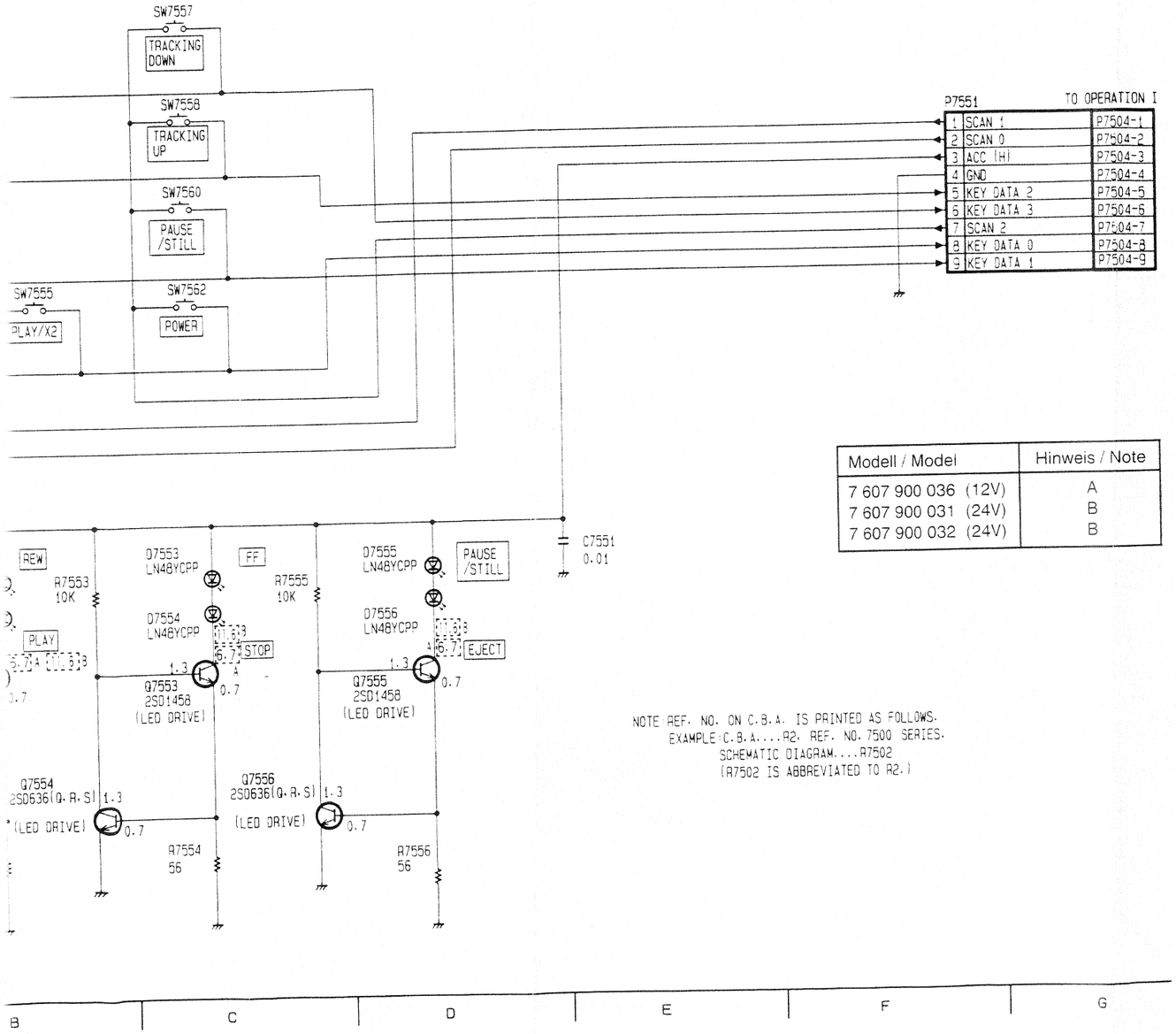
Schaltbild IR-Fernbedienung
IR Remote Control Schematic Diagram



NOTE: REF. NO. ON C.B.A. IS PRINTED AS FOLLOWS.
EXAMPLE: C.B.A....R2. REF. NO.6800 SERIES.
SCHEMATIC DIAGRAM....R6802
(R6802 IS ABBREVIATED TO R2.)

ram

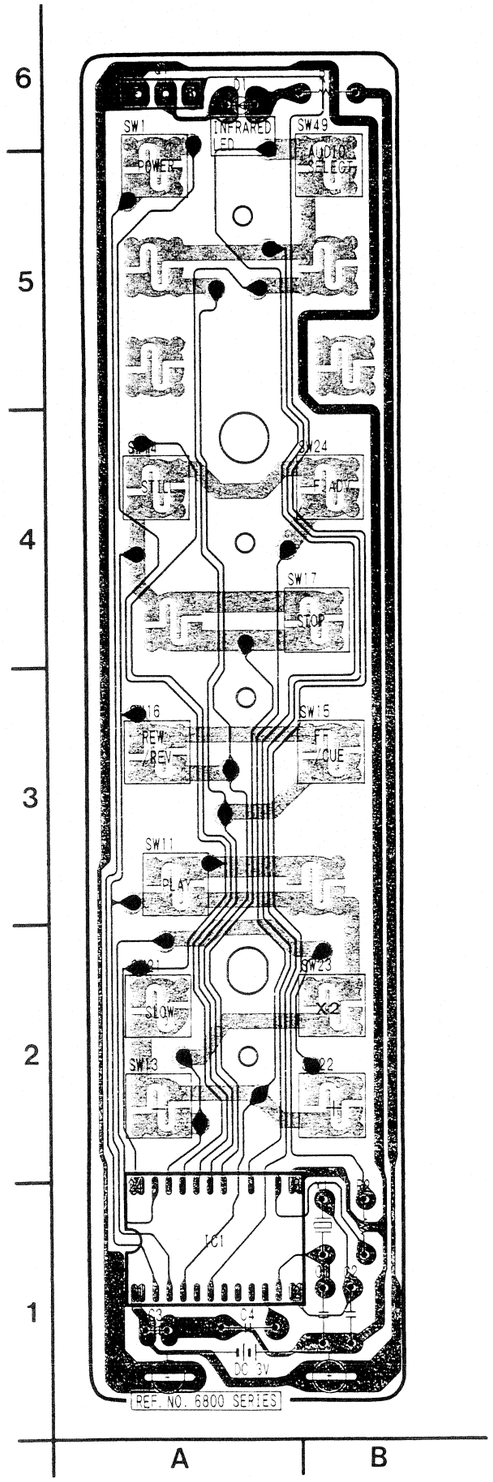
NOTE:
1. DO NOT USE THE PART NUMBER SHOWN ON THIS DRAWING FOR ORDERING. THE CORRECT PART NUMBER IS SHOWN IN THE PARTS LIST, AND MAY BE SLIGHTLY DIFFERENT OR AMENDED SINCE THIS DRAWING WAS PREPARED.
2. MAINTAIN ORIGINAL FUNCTION AND RELIABILITY OF REPAIRED UNITS. ONLY USE ORIGINAL REPLACEMENT PARTS WHICH ARE LISTED WITH THEIR PART NUMBERS IN THE PARTS LIST SECTION OF THE SERVICE MANUAL.



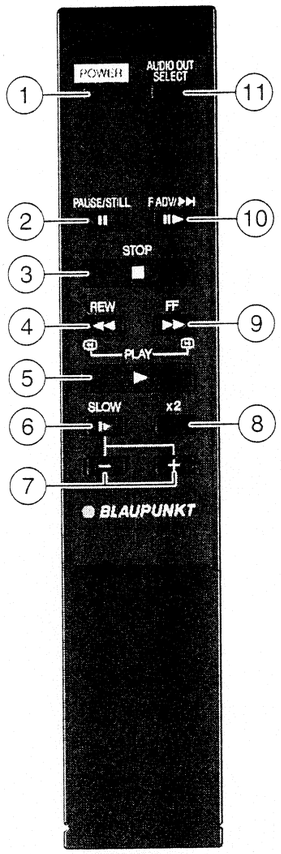
Modell / Model	Hinweis / Note
7 607 900 036 (12V)	A
7 607 900 031 (24V)	B
7 607 900 032 (24V)	B

NOTE: REF. NO. ON C.B.A. IS PRINTED AS FOLLOWS.
EXAMPLE: C.B.A....A2, REF. NO. 7500 SERIES.
SCHEMATIC DIAGRAM....R7502
(R7502 IS ABBREVIATED TO R2.)

IR-Fernbedienungsplatine
IR Remote Control C.B.A.



Bedienungshinweise
IR Remote Control



Bevor Sie die Infrarot Fernbedienung in Betrieb nehmen, setzen Sie die beigelegten Batterien (Typ Mignon 1,5 V – UM 3 AA – IEC R6) wie angegeben in das Batteriefach auf der Rückseite der Fernbedienung.

(1)	**POWER**	– zum Ein- und Ausschalten des Gerätes (Player).
(2)	**PAUSE/ STILL**	– Standbild • Tritt bei der Standbild-Wiedergabe ein Bildzittern auf, so können Sie mit den Tasten TRACKING **-/+ am Player** ein stehendes Bild einstellen. • Treten Störstreifen auf, dann die Taste SLOW (6) drücken und mit den Tasten TRACKING **-/+ am Player** die Störstreifen verringern bzw. ausblenden. Anschließend wieder die Taste PAUSE/STILL (2) drücken.
(3)	**STOP**	– zum Beenden des Bandlaufs und eingeschalteter Funktionen.
(4)	**REW**	– bei Stop: schneller Rücklauf – bei Play: schneller Bildsuchlauf (der Ton wird stummgeschaltet).
(5)	**PLAY**	– Wiedergabe (aus allen Funktionen).
(6)	**SLOW**	– verlangsamte Wiedergabe (Zeitlupe).
(7)	**–/+**	– zum Einstellen der Zeitlupen-Geschwindigkeit.
(8)	**x 2**	– zum Umschalten auf doppelte Wiedergabe-Geschwindigkeit.
(9)	**FF**	– bei Stop: schneller Vorlauf – bei Play: schneller Bildsuchlauf (der Ton wird stummgeschaltet).
(10)	**F ADV**	– bei Pause: Einzelbildfortschaltung. – bei Play: ca. 9 Sek. schneller Bildsuchlauf
(11)	**AUDIO OUT SEL.**	– zur Wahl der Tonspur HiFi L+R, HiFi L, HiFi R.

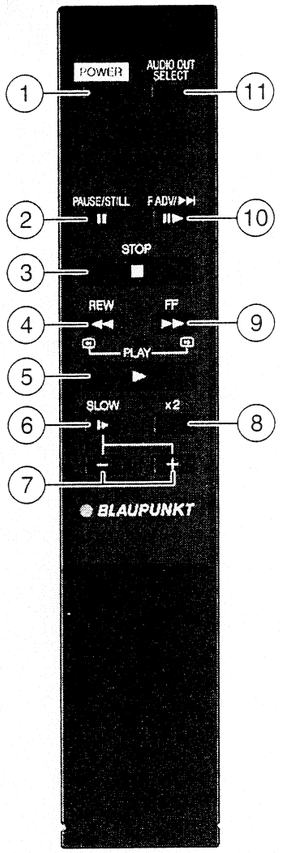
Schützen Sie die Umwelt!

Verbrauchte Batterien gehören nicht in den Hausmüll!

Bitte bei Ihrem Fachhändler oder einer Sammelstelle für Sonderstoffe abgeben.

Hinweis:
Ist am Player der REMOTE-Stecker eingesteckt, so hat die Fernbedienung keine Funktion.

Operating Instructions
IR Remote Control



Before using the infrared remote control for the first time insert the enclosed batteries (type Mignon 1.5 V – UM 3 AA – IEC R6) into the battery compartment as described on the rear side of the remote control.

(1)	**POWER**	– To switch the unit on and off.
(2)	**PAUSE STILL**	– Still picture • Should the still picture flicker this can be corrected using the TRACKING **-/+** buttons provided **on the player**. • If interference patterns appear, press the SLOW button (6) and correct the patterns using the TRACKING **-/+** buttons provided **on the player**. Then press the PAUSE/STILL button (2) once again.
(3)	**STOP**	– To stop tape winding and activated functions.
(4)	**REW**	– From stop position: To rewind the tape rapidly. – During playback: High speed picture search in reverse direction (audio will be muted).
(5)	**PLAY**	– Starts playback (from all functions).
(6)	**SLOW**	– Playback at lower speed (slow-motion).
(7)	**–/+**	– To adjust the slow-motion speed.
(8)	**x 2**	– To change to double speed playback.
(9)	**FF**	– From stop position: To advance the tape rapidly. – From playback: High speed picture search in forward direction (audio will be muted).
(10)	**F ADV**	– During pause: To advance the still picture by one field. – During playback: High speed picture search for about 9 seconds.
(11)	**AUDIO OUT SEL.**	– To select the audio track HiFi L+R, HiFi L, HiFi R.

Protect the environment!

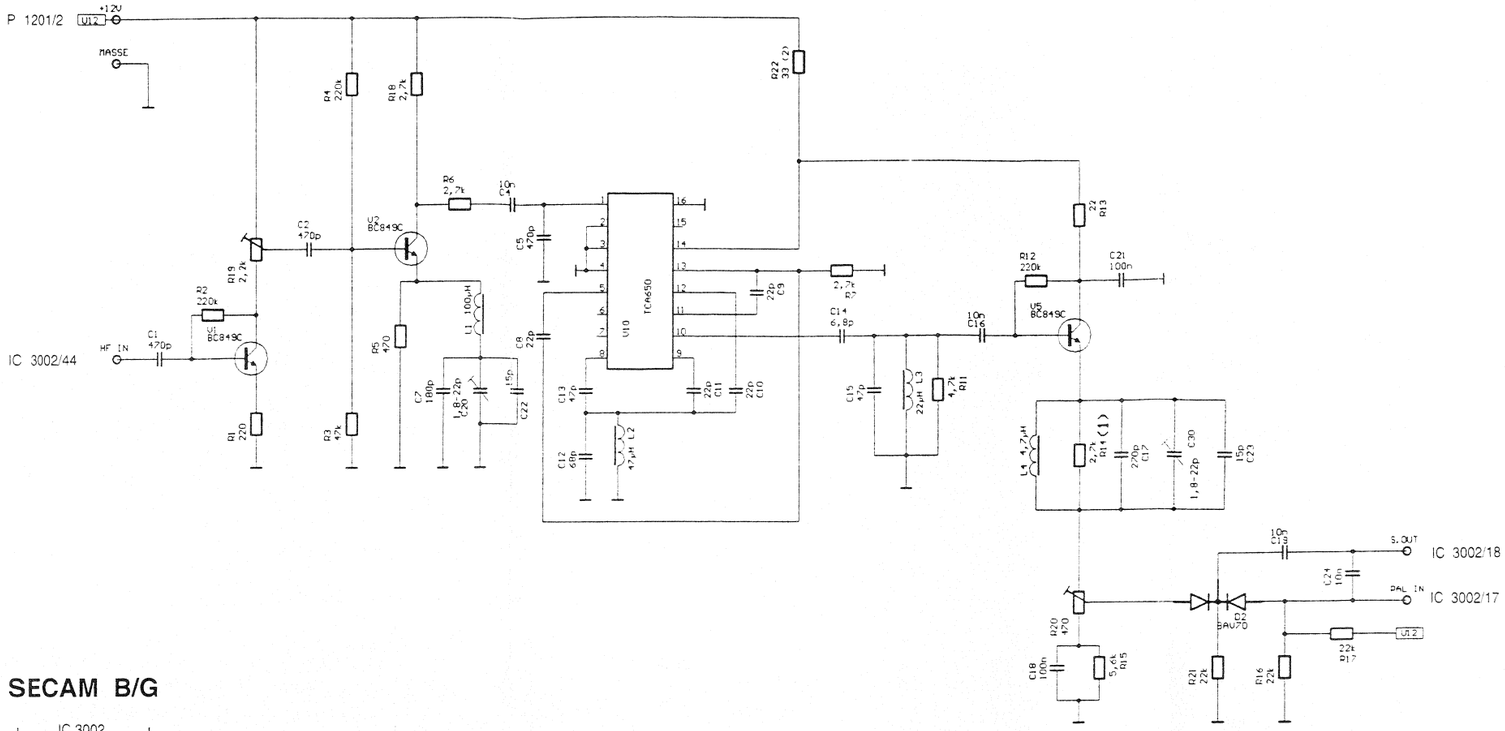
Dead batteries do not belong in your domestic refuse!

Please return them to your distributor or bring them to a collecting point for special substances.

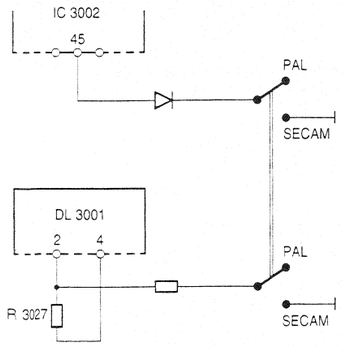
Note: If the REMOTE connector is plugged into the player, the remote control cannot be operated.

Schaltbild SECAM-Teil (nur Version 7 607 900 032)
SECAM Schematic Diagram (only version 7 607 900 032)

SECAM L



SECAM B/G



Einstellhinweise

Die nachfolgende Einstellung ist nur erforderlich, wenn die SECAM-Platine gewechselt wurde.

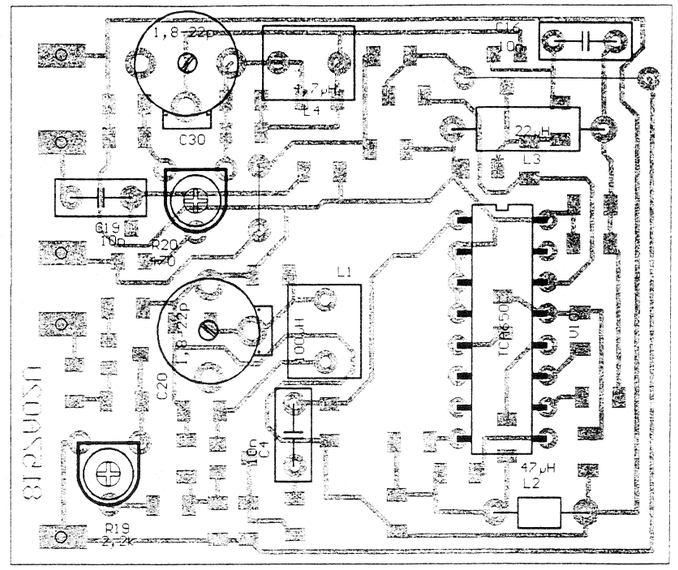
- SECAM L-Testcassette abspielen.
- Mit dem Einstellregler R 19 eine Spannung von 250 mVss an Pin 1 IC V 10 einstellen.

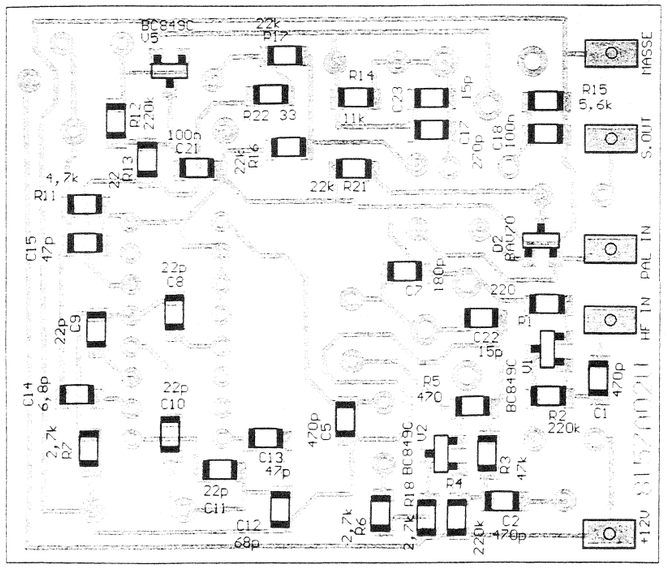
Adjustment Hints

The following adjustment is only required after exchange of the SECAM board.

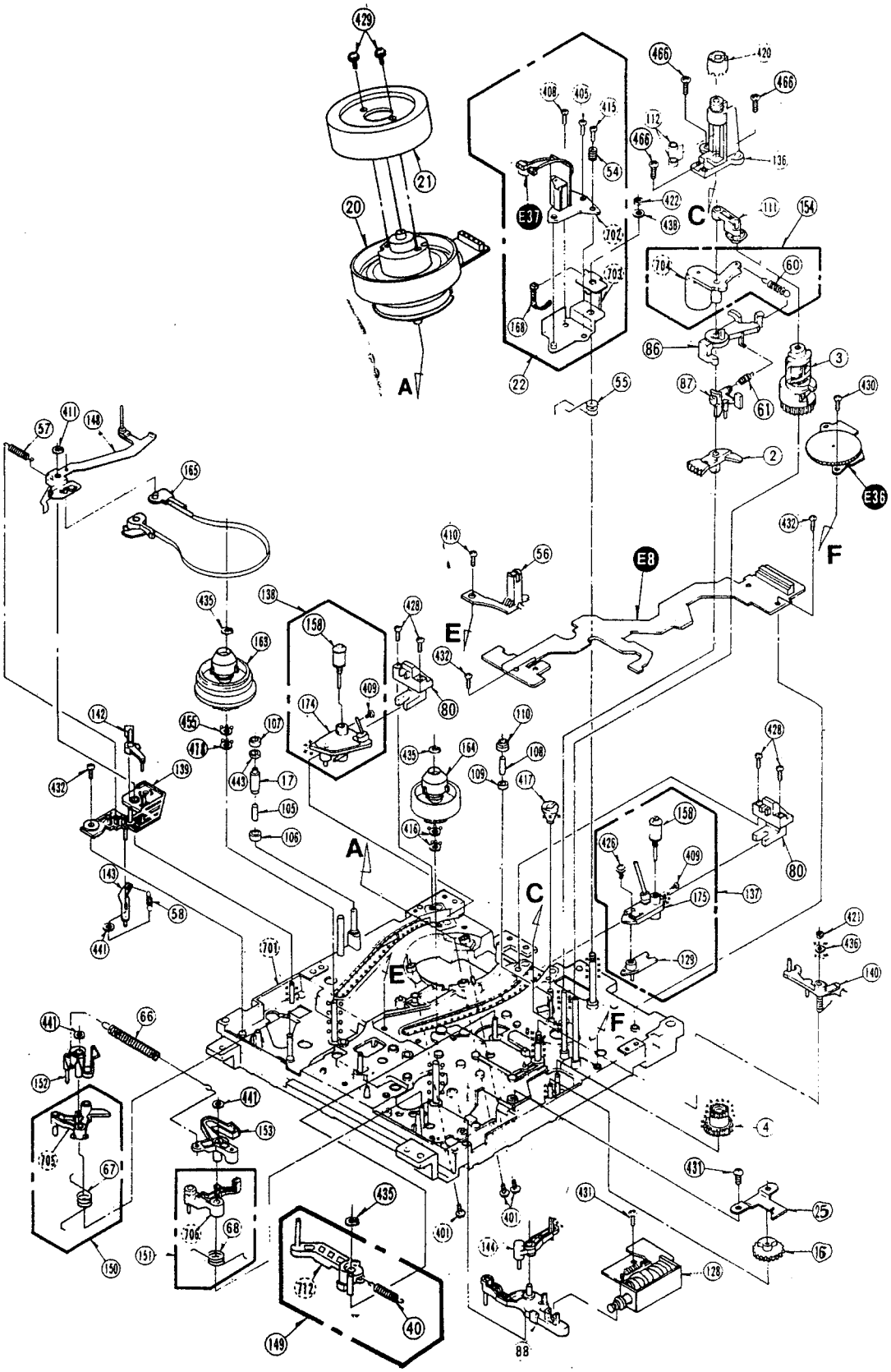
- Play a SECAM L test cassette.
- Use the control element R 19 to adjust a voltage of 250 mVpp at pin 1 of the IC V 10.

SECAM L - Platine
SECAM L C.B.A.

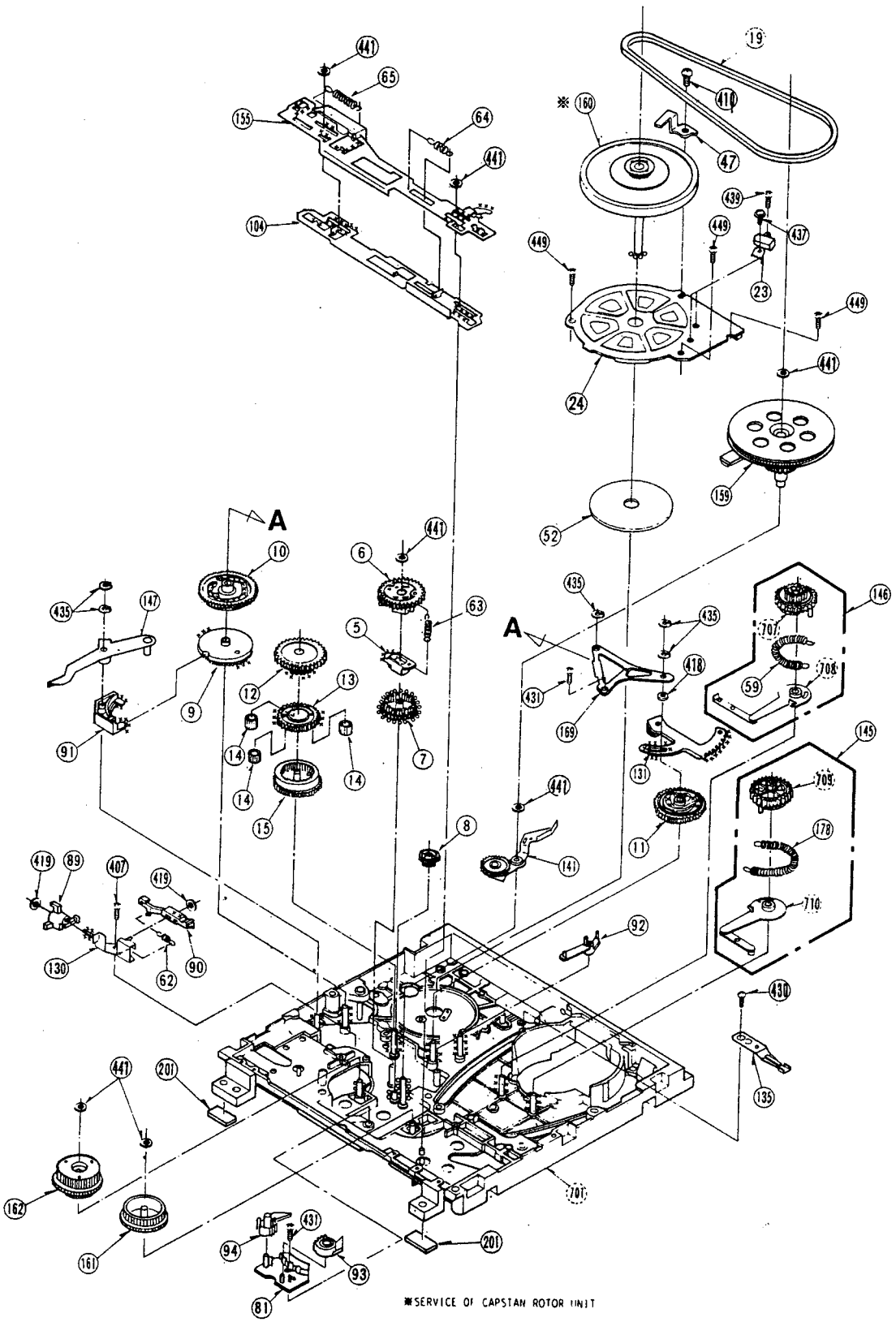




Explosionszeichnung (1) Chassis-Teile
Exploded View (1) Chassis Parts Section



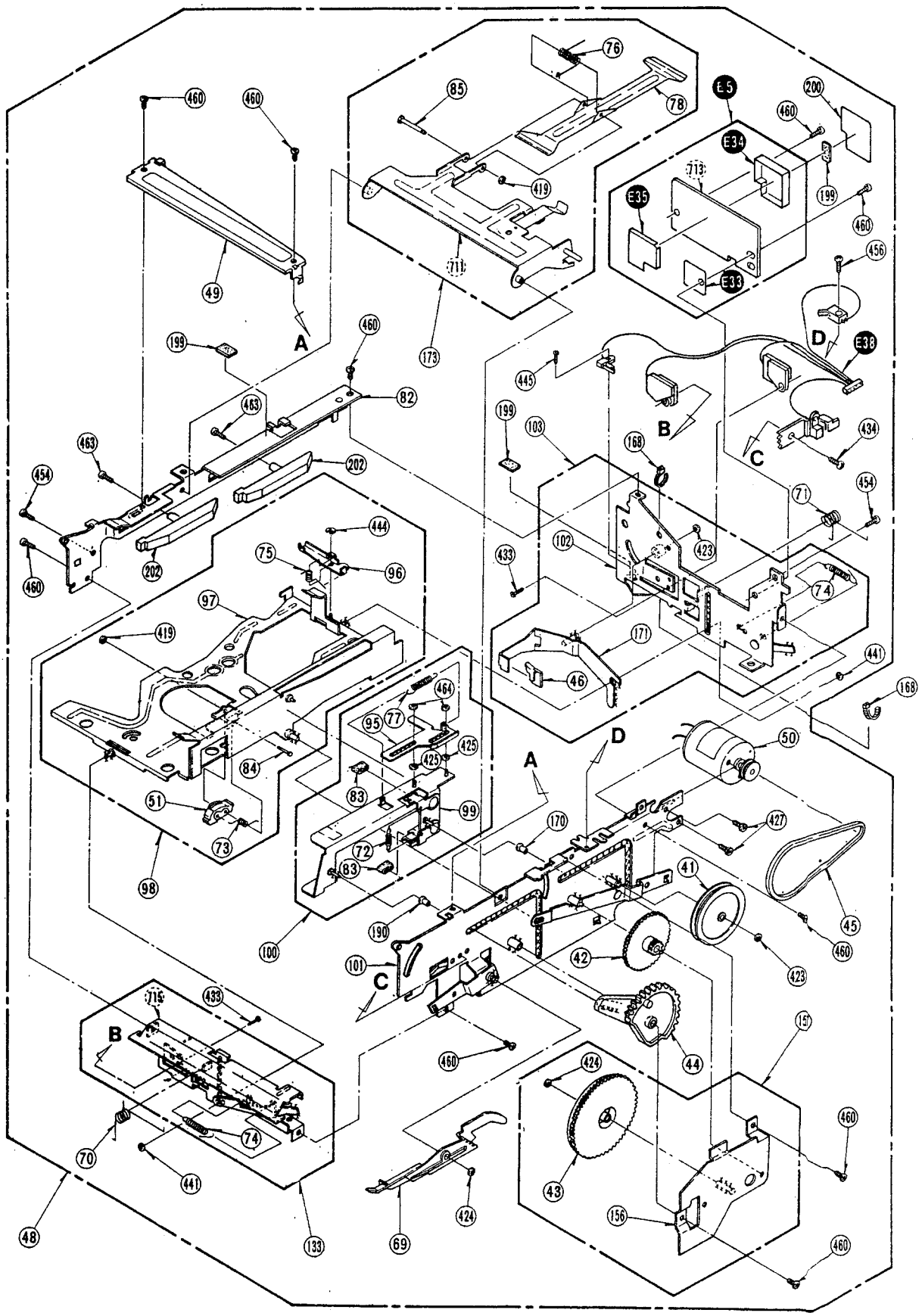
Explosionszeichnung (2) Chassis-Teile
Exploded View (2) Chassis Parts Section



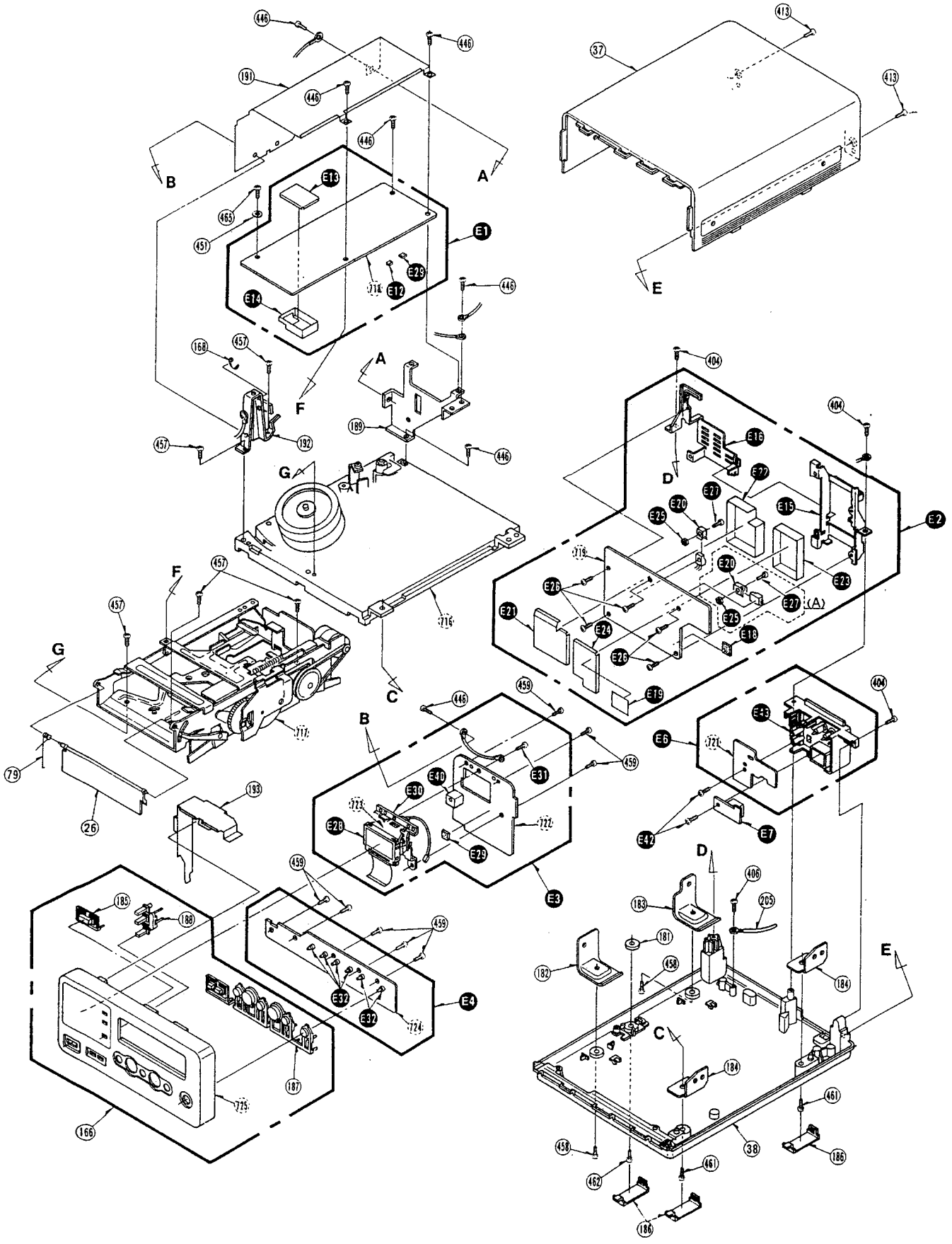
※SERVICE OF CAPSTAN ROTOR UNIT

THE CAPSTAN ROTOR UNIT IS SUPPLIED AS A REPLACEMENT PART IN A COMPLETE UNIT WITH A SPRING LOADED CAPSTAN PULLEY. DO NOT REMOVE THE RETAINING RING ON THE CAPSTAN PULLEY OF THE CAPSTAN ROTOR UNIT.

Explosionszeichnung (3) Cassettenfach-Teile
Exploded View (3) Cassette Mechanism Section



Explosionszeichnung (4) Gehäuse-Teile
Exploded View (4) Casing Parts Section



Bestell-Nr. zur Explo Nr. 1, Seite 99
Part no. to Explo no. 1, page 99

Hinweis:
Nur die in dieser Liste angegebenen Teile (Lfd. Nr.) sind Ersatzteile.

Note:
Only the parts indicated in this list (Item no.) are spare parts.

Lfd. Nr. Item no.	Bestell-Nr. Part no.
2	8 619 419 362
3	8 619 419 338
4	8 619 419 339
16	8 619 419 349
17	8 619 419 350
20	8 619 439 604
21	8 619 439 602
22	8 619 439 603
25	8 619 419 874
55	8 619 419 624
56	8 619 419 875
57	8 619 419 627
58	8 619 419 625
61	8 619 419 626
66	8 619 419 628
80	8 619 419 876
86	8 619 419 880
87	8 619 419 881
88	8 619 419 891
105	8 619 419 358
106	8 619 419 877
107	8 619 419 878
108	8 619 419 879
109	8 619 419 359
110	8 619 419 360
111	8 619 419 895
128	8 619 429 505
136	8 619 419 882
137	8 619 419 883
138	8 619 419 884
139	8 619 419 885
140	8 619 419 886
142	8 619 419 887
143	8 619 419 888
148	8 619 419 896
149	8 619 419 890
150	8 619 419 897
151	8 619 419 892
152	8 619 419 898
153	8 619 419 893
154	8 619 419 894
163	8 619 419 361
164	8 619 419 363
165	8 619 419 910

Bestell-Nr. zur Explo Nr. 2, Seite 100
Part no. to Explo no.2 page 100

Hinweis:
Nur die in dieser Liste angegebenen Teile (Lfd. Nr.) sind Ersatzteile.

Note:
Only the parts indicated in this list (Item no.) are spare parts.

Lfd. Nr. Item no.	Bestell-Nr. Part no.
5	8 619 419 340
6	8 619 419 341
7	8 619 419 342
8	8 619 419 364
9	8 619 419 343
10	8 619 419 344
11	8 619 419 345
12	8 619 419 346
13	8 619 419 347
14	8 619 419 365
15	8 619 419 348
19	8 619 419 908
23	8 619 439 601
24	8 619 429 407
62	8 619 419 620
63	8 619 419 621
64	8 619 419 623
65	8 619 419 622
81	8 619 419 857
89	8 619 419 858
90	8 619 419 859
91	8 619 419 860
92	8 619 419 861
93	8 619 419 862
94	8 619 419 863
104	8 619 419 864
130	8 619 419 865
131	8 619 419 866
135	8 619 419 867
141	8 619 419 868
145	8 619 419 869
146	8 619 419 870
147	8 619 419 871
155	8 619 419 472
159	8 619 419 355
160	8 619 419 356
161	8 619 419 366
162	8 619 419 357
169	8 619 419 873

Bestell-Nr. zur Explo Nr. 3, Seite 101
Part no. to Explo no. 3, page 101

Hinweis:
Nur die in dieser Liste angegebenen Teile (Lfd. Nr.) sind Ersatzteile.

Note:
Only the parts indicated in this list (Item no.) are spare parts.

Lfd. Nr. Item no.	Bestell-Nr. Part no.
41	8 619 419 351
42	8 619 419 352
44	8 619 419 195
45	8 619 419 909
46	8 619 419 849
48	8 619 419 196
49	8 619 419 197
50	8 619 429 408
69	8 619 419 850
70	8 619 419 618
71	8 619 419 619
82	8 619 419 198
98	8 619 419 899
100	8 619 419 199
101	8 619 419 851
103	8 619 419 852
133	8 619 419 853
157	8 619 419 854
170	8 619 419 353
173	8 619 419 855
190	8 619 419 354
202	8 619 419 856

Bestell-Nr. zur Explo Nr. 4, Seite 102
Part no. to Explo no. 4, page 102

Hinweis:
Nur die in dieser Liste angegebenen Teile (Lfd. Nr.) sind Ersatzteile.

Note:
Only the parts indicated in this list (Item no.) are spare parts.

Lfd. Nr. Item no.	Bestell-Nr. Part no.
26	8 619 409 076
37	8 619 409 077
38	8 619 409 078
79	8 619 419 629
166	8 619 409 075

Position Position	Bezeichnung Designation	Bestell-Nr. Part no.
	Werkstatt-Hilfsmittel, Seite 4 **Jigs and Tools, page 4**	
1	VHS-Testcassette VHS alignment tape	8 627 000 540
2	Bandzugwaage Back tension meter	8 619 498 006
3	Höhenmeßuhr Reel table height gauge	8 619 497 807
4	Einstellplatte Post adjustment plate	8 619 497 806
5	Spezialzange Retaining ring remover	8 619 498 001
6	Spezial-Schraubendreher H-portion screw driver	8 619 498 003
7	Feineinstell-Schraubendreher Fine adjustment screw driver	8 619 497 816
8	Einstell-Schraubendreher Fine adjustment screw driver	8 619 498 004
9	Winkel-Kreuzschlitz Lock screw wrench	8 619 499 428
10	Schmiermittel Lubricant	8 619 497 814
11	Kopfreiniger Head cleaning sticks	8 619 497 813
12	Mechanikerspiegel Mechanics mirror	8 627 000 363
13	Lupe Magnifying glass	8 627 000 361
14	Pinzette Tweezers	8 627 000 364
15	Winkelpinzette Angle tweezers	8 627 000 737
16	Sechskant-Schlüsselsatz Hexagonal wrench set	8 619 497 811
	Wichtige mechanische Bauteile **Important mechanical parts**	
1	Kopfscheibe Upper cylinder unit	8 619 439 602
2	Kopftrommelmotor Head drum motor	8 619 439 604
3	Capstan Rotor Capstan rotor	8 619 419 356
4	Capstan Stator Capstan stator	8 619 429 407
5	Cassettenschacht-Motor Front loading motor	8 619 429 408
6	IR-Fernbedienung IR remote control	8 619 499 853
7	Entstörglied Noise filter cable	8 634 493 828
8	SECAM-Platine (8 157) SECAM board (8 157)	8 619 429 795
9	Schalter PAL / SECAM Switch PAL / SECAM	8 619 429 234

Position Position	Bezeichnung Designation	Bestell-Nr. Part no.
	Hauptplatine **Main C.B.A.**	
D 1201	MA 2100 A	8 945 421 487
D 1202	MA 858	8 945 421 488
D 1205	MA 4036-M	8 945 421 489
D 1206	MA 151 WK	8 945 405 317
D 3001	MA 110	8 945 405 811
D 3002	MA 3091M	8 945 406 120
D 3003	MA 3100 L	8 945 405 724
D 3201	MA 110	8 945 405 811
D 3501	MA 110	8 945 405 811
D 4202	MA 110	8 945 405 811
D 4203	MA 110	8 945 405 811
D 4204	MA 153	8 945 405 227
D 4205	MA 110	8 945 405 811
D 4206	MA 3030-L	8 925 810 002
D 6001	MA 110	8 945 405 811
D 6002	MA 110	8 945 405 811
D 6003	ERA 15-01V5	8 945 405 678
D 6004	MA 110	8 945 405 811
D 6201	MA 110	8 945 405 811
D 6202	MA 151 K	8 945 405 226
D 6203	MA 110	8 945 405 811
D 6205	MA 110	8 945 405 811
D 6206	MA 110	8 945 405 811
D 6207	MA 153	8 945 405 227
DL 3001		8 619 489 303
IC 1201	LP 2950 CZ	8 945 903 525
IC 2601	AN 3813 K	8 945 903 524
IC 2602	PUA 3228	8 945 903 526
IC 2603	AN 3826 NK	8 945 905 527
IC 3001	MN 3811 S	8 925 901 226
IC 3002	VCRS 0166 (HIC)	8 945 903 528
IC 3003	ON 3401-R	8 945 903 531
IC 3501	AN 3334 S	8 925 901 227
IC 4201	LA 7280 M	8 925 902 228
IC 4202	M 5280 FP	8 925 902 229
IC 4205	VCRS 0165 (HIC)	8 945 903 529
IC 4401	AN 3316 SB	8 945 903 530
IC 6001	MN 675201 VIY	8 925 901 230
IC 6002	MN 13801 R	8 925 901 231
IC 6003	TA 7291 S	8 925 901 232
IC 6201	AN 1358 S	8 945 901 391
IC 6202	AN 3396	8 945 902 336
PR 6001	1,5A	8 619 489 005
PR 6002	1,5A	8 619 489 005

Position Position	Bezeichnung Designation	Bestell-Nr. Part no.
Q 1201	2SB 644-QRS	8 925 705 102
Q 1202	2SB 1050 QR	8 925 705 091
Q 1203	2SD 601-QRS	8 925 820 030
Q 3002	2SD 601-QRS	8 925 820 030
Q 3003	2SD 601-QRS	8 925 820 030
Q 3004	2SD 601-QRS	8 925 820 030
Q 3005	2SD 601-QRS	8 925 820 030
Q 3006	2SD 601-QRS	8 925 820 030
Q 3007	2SD 601-QRS	8 925 820 030
Q 3008	2SD 874	8 925 705 092
Q 3009	2SD 601-QRS	8 925 820 030
Q 3201	2SD 601-QRS	8 925 820 030
Q 3202	2SD 601-QRS	8 925 820 030
Q 3203	2SD 601-QRS	8 925 820 030
Q 3204	2SD 601-QRS	8 925 820 030
Q 3206	2SD 601-QRS	8 925 820 030
Q 3207	2SB 709-QRS	8 905 705 662
Q 3208	2SC 2404-C	8 925 705 438
Q 3209	2SB 709-QRS	8 905 705 662
Q 3210	2SB 709-QRS	8 905 705 662
Q 3211	2SD 601-QRS	8 925 820 030
Q 3212	2SD 601-QRS	8 925 820 030
Q 3213	2SD 601-QRS	8 925 820 030
Q 3214	2SD 601-QRS	8 925 820 030
Q 3501	2SB 709-QRS	8 905 705 662
Q 4201	2SB 709-QRS	8 905 705 662
Q 4202	2SD 601-QRS	8 925 820 030
Q 4203	2SD 601-QRS	8 925 820 030
Q 4204	DTC 124EK	8 945 705 852
Q 4205	2SD 601-QRS	8 925 820 030
Q 4206	DTC 114TK	8 925 705 471
Q 4207	DTA 114TK	8 925 705 599
Q 4208	DTC 114TK	8 925 705 471
Q 4212	2SD 601-QRS	8 925 820 030
Q 4213	2SD 601-QRS	8 925 820 030
Q 6001	2SB 709-QRS	8 905 705 662
Q 6002	2SD 1483	8 945 706 075
Q 6003	2SD 947	8 945 705 454
Q 6004	2SD 601-QRS	8 925 820 030
Q 6005	2SD 601-QRS	8 925 820 030
Q 6006	2SD 601-QRS	8 925 820 030
Q 6007	2SD 601-QRS	8 925 820 030
Q 6008	2SD 947	8 945 705 454
Q 6009	UN 2111	8 945 705 316
Q 6010	2SA 1618	8 925 705 597
Q 6011	DTC 143EK	8 945 706 155
Q 6201	2SB 709-QRS	8 905 705 662
Q 6203	UN 2210	8 925 705 598
R 6058	22 Ω/3 W	8 940 599 364
TH 6001	2,2 kΩ	8 940 599 794
X 6201		8 946 193 471

Ersatzteilliste

Spare Parts List

Position Position	Bezeichnung Designation	Bestell-Nr. Part no.
	Netzteil Power Unit	
D 1001	MA 728	8 945 405 816
D 1002	SFPB-54 V	8 925 421 603
D 1003	MA 8051- M	8 925 405 566
D 1004	SFPM-52V	8 925 405 633
D 1005	SFPM-52 VL	8 925 405 634
D 1006	ERC 81-004	8 905 406 154
D 1007	MA 8220-M	8 925 421 611
D 1008	MA 151 WK	8 945 405 317
D 1009	ERC 81-004	8 905 406 154
D 1010	RD 22FB / MA 2220	8 945 421 490
D 1011	RD 22FB/ MA 2220	8 945 421 490
D 1012	MA 4160 M	8 925 405 556
D 1013	RD 6,2 EB	8 945 421 495
D 1014	MA 151 K	8 945 405 226
D 1015	MA 4068 L	8 945 421 442
D 1016	MA 151 K	8 945 405 226
D 1017	RU 3YX LFC1	8 945 421 491
IC 1001	UPC 1150 GS	8 925 901 233
IC 1002	AN 1393 S	8 925 900 691
L 1001		8 619 439 052
L 1003		8 619 439 053
L 1007		8 619 439 054
L 1008		8 619 439 055
L 1009		8 619 439 055
PR 1001		8 619 489 006
PR 1002		8 619 489 006
PR 1004		8 619 489 006
PR 1005		8 619 489 006
Q 1001	2SB 710A-RS	8 925 705 082
Q 1002	2SB 1073-Q,R	8 925 705 519
Q 1003	2SB 709-QRS	8 905 705 662
Q 1004	2SB 819-R	8 945 706 208
Q 1004	2SB 1050-Q,R	8 925 705 091
Q 1005	XN 1501	8 945 705 665
Q 1006	2SB 1050-Q,R	8 925 705 091
Q 1007	2SD 1330	8 905 705 507
Q 1008	2SK 1190	8 945 706 219
Q 1009	2SB 709-Q,R,S	8 905 705 662
Q 1010	UN 2212	8 945 705 311
Q 1011	2SB 953A-P,Q	8 945 706 209
Q 1012	2SD 874A-Q	8 925 705 520
Q 1013	2SB 793-RST	8 905 705 678
Q 1014	2SB 1050-Q,R	8 925 705 091
Q 1015	UN 2213	8 945 705 315
Q 1016	2SB 766 A-R,S	8 925 705 628
Q 1017	2SC 3852	8 945 706 211
Q 1018	UN 2111	8 945 705 316
Q 1019	UN 2213	8 945 705 315
Q 1020	2SB 709-QRS	8 905 705 662

Position Position	Bezeichnung Designation	Bestell-Nr. Part no.
R 1065	0,013 Ω	8 940 599 799
R 1080	Varistor S 14 K 14 A	8 941 300 035
	Bedienteil (1) Control Unit (1)	
DP7501	Display	8 619 489 509
D 7502	MA 4051-M	8 945 421 319
D 7503	MA 165	8 905 421 098
D 7504	MA 165	8 905 421 098
D 7505	MA 165	8 905 421 098
IC 7501	UPD 75304 GF-136	8 925 901 225
IC 7502	MN 1280 R	8 945 901 010
IC 7503	AN 1393 S	8 925 900 691
Q 7501	2SD 1458	8 945 705 277
Q 7502	2SB 709-QRS	8 905 705 662
Q 7503	UN 2211	8 945 705 474
Q 7504	UN 2111	8 945 705 316
Q 7505	2SB 643-QRS	8 945 706 207
SW 7501		8 619 521 298
SW 7502		8 619 521 298
SW 7503		8 619 521 298
U 7501	IR-Empfänger / Receiver	8 619 429 504
X 7501		8 946 193 470
	Bedienteil (2) Control Unit (2)	
D 7551	LN 48Y CPP	8 905 405 189
D 7552	LN 48Y CPP	8 905 405 189
D 7553	LN 48Y CPP	8 905 405 189
D 7554	LN 48Y CPP	8 905 405 189
D 7555	LN 48Y CPP	8 905 405 189
D 7556	LN 48Y CPP	8 905 405 189
Q 7551	2SD 1458	8 945 705 277

Ersatzteilliste

Spare Parts List

Position Position	Bezeichnung Designation	Bestell-Nr. Part no.
Q 7552	2SD 636-QRS	8 945 705 189
Q 7553	2SD 1458	8 945 705 277
Q 7554	2SD 636-QRS	8 945 705 189
Q 7555	2SD 1458	8 945 705 277
Q 7556	2SD 636-QRS	8 945 705 189
SW 7551		8 619 521 298
SW 7552		8 619 521 298
SW 7553		8 619 521 298
SW 7554		8 619 521 298
SW 7555		8 619 521 298
SW 7557		8 619 521 298
SW 7558		8 619 521 298
SW 7560		8 619 521 298
SW 7562		8 619 521 298
	AV-Netzteil AV-Power Unit	
D 1301	MA 728	8 945 405 816
D 1302	SFPB-59 V	8 945 406 028
D 1303	MA 4150 L	8 945 421 223
D 1304	SFPB-59 VL	8 925 405 622
D 1306	MA 151K	8 945 405 226
Q 1301	UN 2111	8 945 705 316
Q 1302	UN 2213	8 945 705 315
Q 1303	UN 2213	8 945 705 315
Q 1304	2SD 1483	8 945 706 075
Q 1305	2SB 956 R,S	8 945 705 436
Q 1306	2SD 1119 Q,R	8 945 705 437
Q 1307	2SD 601-RS,Q	8 945 705 560
T 1301		8 619 531 220
IC 1551	ON 2170 -RLF	8 945 902 142

Hinweis:
Handelsübliche Teile sind in der Ersatzteilliste nicht aufgeführt.
Wir bitten Sie, diese Teile im Fachhandel zu beziehen.

Note:
Parts usual in trade are not mentioned in the spare parts list.
Kindly buy these parts from the specialized trade.

Position Position	Bezeichnung Designation	Bestell-Nr. Part no.

BLAUPUNKT

SERVICE INFORMATION

Nr. MOB 7/97	
	Organisation
X	Werkstatt
X	Ersatzteildienst
	Verkauf
	Autoradio
	RadioPhone
	Navigation
	DAB
	Einbau
X	Mobile Audio/Video
X	530/112

Mobile Audio / Video Systeme

(D)

Videoton-Wiedergabe mit MVP 01

Beanstandung : Verzerrungen in Coach Audio-Anlagen bei Videoton-Wiedergabe mit MVP 01.

Ursache : Unterschiedlich hohe NF- Spitzenpegel bedingt durch Aufnahme oder Bandmaterial.

Abhilfe : **BCA 05 und Varianten :** Parallel zum Videoton-Eingang X 20 einen **820 Ω** Widerstand in das Gerät löten.
Neugefertigte Geräte haben die Änderung eingebaut.

BCA 46 : Parallel zum Videoton-Eingang X 70 einen 820 Ω Widerstand in das Gerät löten.
Neugefertigte Geräte haben die Änderung eingebaut.

Mehrkanal-Kopfhöreranlagen mit Stereo-Videotonverstärker 7 607 602 340 : Parallel zu den Eingängen des Videotonverstärkers je einen 470 Ω Widerstand in die Verbindungskabel zum MVP 01 löten.
Neugefertigte Videotonverstärker haben die Widerstände eingebaut.
Diese Maßnahme ist auch bei den Mono-Videoverstärkern 7 607 602 **310** und ...320 anzuwenden.

Änderung zur Technischen Information MOB 4/97.
Bitte jeweils in Punkt 2. den Wert des Folienkondensators (8 902 986 **201**) von 0,22 nF in **22 nF** ändern.

(GB)

Video sound reproduction with MVP 01

Failure mode : Distortion in coach audio systems upon video sound reproduction using MVP 01.

Cause : AF peak levels of different magnitude due to recording or tape material.

Remedy : **BCA 05 and related variants:** Solder a 820 Ω resistor parallel to the video sound input X 20 in the unit.
New units already incorporate this change.

BCA 46: Solder a 820 Ω resistor parallel to the video sound input X **70** in the unit.
New units already incorporate this change.

Multi-channel headphone systems with stereo video sound amplifier 7 607 602 340:
Solder a 470 Ω resistor in each connecting cable leading to MVP 01 parallel to the inputs of the video sound amplifier. New units already incorporate the resistors.
This countermeasure is also applicable for the mono video amplifiers 7 607 602 310 and ... 320.

Modification of Technical Information MOB 4/97.
Please change the value of the foil capacitor (8 902 986 201) as indicated in point 2 each from 0.22 nF to **22 nF**.

BLAUPUNKT-WERKE GMBH • Hildesheim
Kundendienst
Kommunikationserzeugnisse

Sachbearbeiter: K7/VKD11-So
(15.09.97)
Tel.: (05121) 49 4046

(F)

Restitution du son vidéo sur MVP 01

Objet de la réclamation : Distorsion du son sur des installations audio de véhicule avec MVP 01.

Cause : Crêtes des basses fréquences situées à des niveaux différents en raison de la qualité de l'enregistrement ou de la bande.

Remède : **BCA 05 et variantes:** Braser une résistance 820 Ω sur l'appareil, parallèlement à l'entrée son vidéo X 20. Les appareils récents en sont équipés en série.

BCA 46: Braser une résistance 820 Ω sur l'appareil, parallèlement à l'entrée son vidéo X 70. Les appareils récents en sont équipés en série.

Ecouteurs multicanaux avec amplificateur de son vidéo stéréo 7 607 602 340: Braser une résistance 470 Ω sur chaque câble de raccordement à MVP 01, parallèlement aux entrées de l'amplificateur. Les résistances sont montées en série sur les amplificateurs récents.
Procéder de même sur les amplificateurs mono 7 607 602 310 et ...320.

Modification à la fiche technique d'information MOB 4/97:
Modifier la valeur du condensateur à film comme indiquée par point 2 (8 902 986 201) de 0,22 nF à **22 nF.**

(E)

Reproducción de sonido vídeo mediante MVP 01

Modo de fallo : Distorsiones en equipos de audio para autocares en caso de la reproducción de sonido de vídeo mediante el MVP 01.

Causa : Diferentes niveles máximos de la frecuencia de audio debido a la grabación o al material de cinta.

Remedia : **BCA 05 y versiones relacionadas:** Soldar un resistor de 820 Ω en paralelo a la entrada del sonido de vídeo X 20. Aparatos producidos recientemente ya tienen incorporado este cambio.

BCA 46: Soldar un resistor de 820 Ω en paralelo a la entrada del sonido de vídeo X 70. Aparatos producidos recientemente ya tienen incorporado este cambio.

Equipos de auriculares multi-canales con amplificador de sonido estereofónico de vídeo 7 607 602 340: Soldar un resistor de 470 Ω , en cada uno de los cables de conexión al MVP 01 en paralelo a las entradas del amplificador del sonido de vídeo. Aparatos producidos recientemente ya tienen incorporado estos resistores.
Introducir este medida también en los amplificadores monoaurales de vídeo 7 607 602 310 y ... 320.

Modificación de la información técnica MOB 4/97
Cambiar el valor del condensador de hojas (8 902 986 201) de 0,22 nF en **22 nF** bajo el punto 2 (cada uno respectivamente).